Resource Allocation Review Board

August 13, 2002

Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
Pasadena, CA 91109-8099

(818) 354-4321

September 19, 2002
Refer to: 930–02–010–ESB:lc

TO: Distribution

FROM: Eugene S. Burke

SUBJECT: August 13, 2002 Resource Allocation Review Board (RARB) Meeting Minutes

The following are the Minutes of the NASA/JPL Deep Space Network (DSN) Resource Allocation Review Board (RARB) Meeting held at JPL on August 13, 2002. The purpose of this Review is to address the oversubscription of the DSN 26/34/70-meter tracking assets. The Review Board consists of Project Managers, Project Scientists, and key JPL Interplanetary Network Directorate (IND) Deep Space Mission System (DSMS) Managers or their representatives. The Board is responsible for reviewing new or changed requirements, adopting recommendations to reduce periods of heavy contention, and for controlling changes to requirements. This Review addressed contention in 2003, 2004, and 2005.

Review Board Members

The following Review Board Members or their representatives were in attendance:

Bill Weber	JPL	RARB Chairman
Gene Burke	JPL	Resource Allocation Planning & Scheduling Office Manager
Arden Albee	CalTech	Mars Global Surveyor Project Scientist
Irene Bibyk	GSFC	ST-5 Project Representative
Donald Burnett	CalTech	Genesis Project Scientist
Al Cangahuala	JPL	Reference Frame Calibration Project Manager
Albert Chang	JPL	Nozomi and Lunar-A Project Representative
Joy Crisp	JPL	Mars exploration Rover Project Scientist
Alan Cummings	CalTech	Voyager Project Scientist Representative
Peter Doms	JPL	Deep Space Mission System (DSMS) Program Manager
Tom Duxbury	JPL	Stardust Project Manager
Bob Farquhar	APL	CONTOUR, MESSENGER Mission Manager
John Gagosian	GSFC	TDRS-I, J Project Manager Representative
David Gallagher	JPL	SIRTF Project Manager
Roger Gibbs	JPL	Mars 2001Odyssey Deputy Project Manager
Ike Gillam	HTSI	CSOC JPL Site Manager
Dick Goldstein	JPL	Goldstone Orbital Debris Radar Representative
Jim Graf	JPL	Mars Reconnaissance Orbiter Project Manager
Dwight Holmes	JPL	INTEGRAL and Rosetta Representative
Richard Horttor	JPL	Mars Express Orbiter Project Manager
Torrence Johnson	JPL	Galileo Project Scientist
Mike Klein	JPL	Radio Astronomy Project Manager
Ron Mahmot	GSFC	Space Science Mission Operations Manager (ISTP, ACE, Image and MAP)

Ed Massey	JPL	Ulysses and Voyager Project Manager
Dennis Matson	JPL	Cassini Program Scientist
Rich Miller	JPL	DSMS Plans & Commitments Office Manager
Bob Mitchell	JPL	Cassini Project Manager
Brian Muirhead	JPL	Deep Impact Project Manager
Dan Ossing	APL	STEREO Project Representative
Steve Ostro	JPL	GSSR Project Scientist
Bob Preston	JPL	U.S. Space VLBI Project Scientist
Chet Sasaki	JPL	Genesis Project Manager
Steve Saunders	JPL	Mars 2001 Odyssey Mission Project Scientist
Rance Skidmore	Omitron	GOES Project Manager Representative
Martin Slade	JPL	GSSR Project Manager
Ed Smith	JPL	Ulysses Project Scientist
Joel Smith	JPL	Muses-C and US Space VLBI Project Manager
Joe Statman	JPL	DSMS Engineering Program Office Manager
Eileen Theilig	JPL	Galileo Project Manager
Pete Theisinger	JPL	Mars Exploration Rover (MER) Project Manager
Tom Thorpe	JPL	Mars Global Surveyor Project Manager
Phil Varghese	JPL	Planetary Flight Projects Mission Management Office
Joe Wackley	JPL	DSMS Operations Office Program Manager
Greg Wright	MSFC	Chandra Project Manager Representative

Review Materials
These Minutes include the material included in the bound handout book, as well as the presentations distributed at the RARB:

Agenda

1. Introduction ..... B. Weber
2. Overview, Action Items, Contention Summary ..... G. Burke
3. NASA Office of Space Science Code S ..... B. Geldzahler
4. JPL DSMS Engineering Program Office ..... J. Statman
5. JPL DSMS Operations Program Office ..... J. Wackley
6. Resource Contention 2003-2012
    a. Analysis and recommendations ..... N. Lacey
    b. Responses ..... Projects
    c. Discussion / Decisions ..... All
7. New Action Items & Summary ..... G. Burke

***Introduction* – *B. Weber*, RARB Chairman**

After welcoming the participants, Mr. Weber stated that the role of the Interplanetary Network Directorate (IND) is to facilitate the contention resolution process; it is not the "Decision Maker". Mr. Weber, lightheartedly illustrated the purpose of the Review process with a visual aid (a picture of many people getting into a telephone booth). The point was made that the periods being discussed hold a high level of contention, and it will take everyone working together to get everything to fit into the schedule, just as it took all those people working together to fit into the single telephone booth.

***Overview, February 2002 Action Items Review, Contention Summary* - G. Burke, RAPSO Manager**

The RARB Agenda was reviewed, and members of the Review Board and other participants were introduced. An overview of unsupportable time at the DSN sites was presented. The NASA agreement with Parkes Radiotele-

scope (DSS-49), as well as the capabilities and limitations of the facility were discussed. An overview of the MSPA and NSP setup was also presented.

D. Morris discussed Action Items from the February 2002 RARB. Mr. Morris stated that Action Items 1, and 3 through 12, have been closed. Action Item number 2 still remains open, although a resolution has been presented. The resolution to decrease the support requirements of CAT M&E's will be reviewed before the Action Item is closed.

NASA Office of Space Science Code S **– C. Holmes**

Mr. Holmes discussed the Senate Appropriations Committee "mark-up" of the 2003 Appropriations Bill and noted some decreases in specific areas. A decrease of $9 million from the Nuclear Power Program will affect the Mars Smart Lander, and other 2007 and beyond missions, due to their plans to utilize Radioisotope Thermonuclear Generators for spacecraft power. Another decision of note made by the Senate Appropriations Committee, is to overturn a larger CSOC presence at the Jet Propulsion Laboratory.

The completed Decadal Survey was presented. A high degree of support was given for continued Mars exploration missions and priorities consistent with the current science strategy, as well as the Sun-Earth connection missions. The Space Communications Realignment was also discussed. NASA's data networks have been realigned and funding proposals have been submitted to the 2003 presidential budget.

The Science Prioritization Review Board met for the second time this past July, to prepare for and set priorities and contingencies for the November 2003 – February 2004 time period. The next session of the Board will set practices for real time prioritizing.

JPL DSMS Engineering Program Office **– J. Statman**

Mr. Statman reported on the status of tasks directed by the JPL DSMS Engineering Program Office. Tasks completed include: the new release of 26m automation software version D3.1, which adds automation and SLE capability; the NMC version 1.4, which adds remote monitoring capability to the NOCC and ROSA; AMMOS 26.4; and the Uplink D2 command system upgrade.

The following tasks are to be completed before the heightened activity period of November 2003 – February 2004: the X/X feeds replacement at the 34m Beam Waveguide antennas to X/X/Ka-band feeds, by November 2003; the DSS-55 antenna will become operational by November 2003; the 4kW transmitter replacement with 20kW at the 34m Beam Waveguide antennas; the Dual MSPA downlink simplification, by spring 2003; adding Arraying capability at overseas stations, by summer 2003; Delta-DOR tools wide use implementation, by spring 2003; and the NSP replacement of Telemetry, Ranging and Doppler equipment for the 34 and 70-meter antennas.

JPL DSMS Operations Program Office **– J. Wackley**

The JPL DSMS Operations Program Office has been preparing for the heightened activity period of November 2003 – February 2004 with high level training, procedures, and documentation updates, for the new support capabilities as well as the '03 / '04 unique requirements. In preparation for the heightened activity period, DSMS Operations is working to reduce maintenance time, reduce tracking preparation time, operating non-DSN assets, improving response, coping with extended Level 1 times, and developing MSPA operations scenarios. The DSMS has established in the NOCC to improve DSN response to flight projects and to enable rapid resolution of problems.

Resource Contention Summary **– N. Lacey**

Presentations were made regarding the Loading Study Initial Conditions and the Changes in Project Requirements. The approach used in identifying and evaluating contentions for this Review has changed. For the years addressed

at this Review, each month was evaluated for contentions. A description of critical events, an analysis of potential problems, and proposed recommendations are listed for each month. Background/source information is also shown (view the "Red Book" by clicking the following link: http://rapweb.jpl.nasa.gov/)

Following are the results of the RARB negotiations, which are described in detail, and will be considered the new baseline for DSN resource allocation.

August 13, 2002 RARB Contention Resolution Minutes

2003 Contention Period - May - Weeks 18 – 22

Mars Global Surveyor agreed to reduce 4 of 9 supports to 7 hours, and MSPA with Mars Odyssey at DSS-25,45,65, and schedule four 5-hour standalone supports at DSS-43,63 in Week 18. MGS also agreed to move Week 22 MSPA support with Mars Odyssey from DSS-25,**34**,54 to DSS-25,**45**,54, to accommodate Mars Exploration Rover-A launch.

Mars Odyssey agreed to change 4 of 14 standalone passes in Week 18 to MSPA with Mars Global Surveyor at DSS-25,45,65. Mars Odyssey also agreed to move Week 19 support from DSS-25,**34**,65 to DSS-25,**45**,65. Mars Odyssey also agreed to move Week 22 MSPA support with Mars Global Surveyor from DSS-25,**34**,54 to DSS-25,**45**,54 to accommodate Mars Exploration Rover-A launch.

Wind agreed to move three routine supports from DSS-24,34 to DSS-24, and add one 2-hour pre-maneuver support at DSS-34 in Weeks 18 and 19 to accommodate Mars Exploration Rover-A launch.

2003 Contention Period - June - Weeks 23 – 26

Galileo agreed to requested support in Week 25, using DSS-14, to accommodate Mars Exploration Rover-A.

GSSR agreed to move Orbital Debris Radar support from Week 23 to Week 20, to accommodate Mars Exploration Rover-A launch.

Mars Exploration Rover-A agreed to move 3 of 18 cruise supports in Week 25 from the 34HEF to the 34BWG1. MER-A also agreed to change 13 cruise supports in Week 26, on the 70m, to two 8-hour passes at DSS-14 and eleven 8-hour supports at DSS-43,63.

Mars Odyssey agreed to change Delta DOR support in Week 25 from DSS-43,63 to DSS-63 only with DSS-25. M01O also agreed to reduce 7 standalone supports in Week 26 to 5 supports at DSS-26,34,54 and change 2 supports to split passes of 4-hours each at DSS-24 and DSS-54.

MEGA agreed to reduce support in Week 25 from 8 hours to 4 hours, to accommodate Mars Exploration Rover-A.

Nozomi agreed to reduce Delta DOR supports in Week 25 from 3 hrs to 2 hrs, and reduce supports in Week 26 on the 34BWG1 from 9 passes to 7, to accommodate Mars Exploration Rover-B and Cassini.

Reference Frame Calibration agreed to move Cat M&E support from Week 26 to Week 23, to accommodate Mars Exploration Rover-A and B.

Ulysses agreed to move Week 25 6-hr supports from DSS-65,54 to DSS-63, to accommodate Mars Exploration Rover-A and B and Genesis.

Voyager 2 agreed in Week 26 to reduce DSS-43 supports from 7 passes to 4, and schedule 3 split passes of 4 hours each at DSS-43 and DSS-45,34, to accommodate Mars Exploration Rover-A.

Wind agreed to change supports in Weeks 25 and 26 from the 34BWG1 antenna to DSS-24,54, and reduce support from 5 hours to 4 hours, to accommodate Mars Exploration Rover-A and B and Genesis.

2003 Contention Period - July - Weeks 27 - 31

Advanced Composition Explorer agreed in Weeks 28-31, to move 1 support from DSS-27 to DSS-66, to accommodate DSS maintenance.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

Cassini agreed to reduce DSS-45 Conjunction supports in Weeks 27 and 28 to 5 hours and increase DSS-25 8-hour supports to 12 hours. Cassini also agreed to increase support from 4 hours to 12 hours, and move support from DSS-25 to DSS-26 in Week 28, to accommodate DSS-25 maintenance.

Cluster agreed to delete the DSS-16 SSO support requirement in Weeks 29-31.

DSS-16 Servo Drive Retrofit downtime was approved and accepted, DSS (Dennis Buck) agreed to delete DSS-16 routine maintenance supports in Weeks 29-31, and reduce DSS-24 maintenance support in Weeks 30 and 31 from 8 hours to 6 hours during the DSS-16 downtime.

Geotail agreed to move all supports in Weeks 29-31 from 26m to DSS-27,46,66, to accommodate DSS-16 downtime.

GBRA agreed to move Host Country support from Week 29 to Week 30.

GSSR Mars Radar Observation did not agree with the recommendation to move support from Weeks 30 and 31 to Weeks 28 and 29 and reduce supports from 7 hours to 4 hours.

Note: Marty Slade, Project Manager disagreed with the recommendation on the basis that the proposed changes would seriously compromise the Project's efforts and invalidate data collected. He proposed that MARS Mission Planning Office consider accommodating this support, as they are the beneficiaries of the Project's efforts.

Action Item #3 A. Haldemann and C. Edwards accepted an Action Item to investigate and negotiate the conflicting requirements for GSSR-Mars Landing Survey vs. ongoing Mars Program Spacecraft support. Three months allotted.

INTEGRAL agreed to move support from DSS-16 to DSS-24 to accommodate DSS-16 downtime.

Mars Odyssey agreed to change standalone Mapping support in Week 31 from DSS-25,34 to DSS-25,26,34. M01O also agreed to change from Mars Odyssey/Mars Global Surveyor MSPA supports in Week 31 from DSS-25,34,63 to DSS-25,34,63,65.

Nozomi agreed to move Delta DOR supports from Weeks 28 and 31 to Week 29.

Polar agreed to move all supports in Weeks 29-31 from 26m to DSS-27,46,66.

SOHO agreed to move all supports in Weeks 29-31 from 26m to DSS-27,46,66.

Ulysses requested support in Week 31 using two 10-hour supports at DSS-14,63, and using split passes of 5-hour duration at DSS-63, DSS-43, and DSS-14 (5 passes at DSS-63, 4 passes at DSS-43, and 1 pass at DSS-14) was accepted.

2003 Contention Period - August - Weeks 32 - 35

Cassini agreed to move all support from DSS-25,45 to DSS-15,26,45.

DSS requested downtime for DSS-25 X-band 20 kW transmitter installation was accepted. DSS agreed to delete DSS-25 maintenance in Weeks 32-35.

Galileo's requested support in Week 33 using DSS-43,63 was accepted.

GSSR did not agree to move all DSS-14/25 Mars Observation supports in Weeks 33-35 to DSS-14/15, GSSR reduce support from 7 hours to 4 hours, and move Week 33 support to Week 35.

Note: Marty Slade, Project Manager disagreed with the recommendation on the basis that the proposed changes would seriously compromise the Project's efforts and invalidate data collected. He proposed that MARS Mission Planning Office consider accommodating this support, as they are the beneficiaries of the Project's efforts.

Action Item #3 Albert Haldemann and Chad Edwards accepted an Action Item to investigate and negotiate the conflicting requirements for GSSR-Mars Landing Survey vs. ongoing Mars Program Spacecraft support. Three months allotted.

Mars Exploration Rover-A agreed to move 3 TCM supports from 34HEF to the 70m in Week 32. MER-A also agreed to move DSS-25 cruise support in Week 32 to DSS-26.

Mars Exploration Rover-B agreed to move cruise supports in Week 32 from the 34HEF to the 70m and to move Cruise/VLBI support Week 33 from DSS-14,15,24,25 to DSS-14,15,26.

Mars Global Surveyor agreed to move all MSPA supports with Mars Odyssey in Weeks 32-34 from DSS-25,24,34 to DSS-26,24,34, and to move Week 35 supports from DSS-25 to DSS-26.

Mars Odyssey agreed to move mapping supports in Weeks 32-34 from DSS-25,34 to DSS-26,34, and to move MSPA supports with Mars Global Surveyor from DSS-25,24,34 to DSS-26,24,34.

SIRTF agreed to change support from 34HEF, DSS-25 to 34HEF.

Voyager 1 agreed to move support in Weeks 32 and 33 from DSS-14,25,26, to DSS-14,26.

2003 Contention Period - September - Weeks 36 - 39

Advanced Composition Explorer agreed to move 1 support each in Weeks 36 and 38 from DSS-27 to DSS-66, to accommodate DSS maintenance, and to move 4 of 7 supports in Week 39 from DSS-16 to DSS-27,46.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

Cassini agreed to move DSS-45,25 support to DSS-45,15 in Week 36, and from DSS-25 to DSS-15,26 in week 37.

Chandra agreed to move all Week 36 support from 34BWG1 to DSS-24,34,66.

DSS agreed to delete DSS-25 maintenance support in Weeks 36 and 37, DSS-54 maintenance support in Week 36, and DSS-66 maintenance support in Weeks 38 and 39. Requested support for DSS-25 downtime in Weeks 36 and 37, DSS-54 downtime extension in Week 36, and for DSS-66 downtime in Weeks 38 and 39, which is accepted and approved.

Genesis agreed to move Week 36 support from 34BWG1 to DSS-24,34 and to use DSS-66 during the DSS-54 extended downtime.

Geotail agreed to move support in Weeks 38-39 from 26m to DSS-16,46,54,65.

IMAGE agreed to move all Week 36 support from 34BWG1 to DSS-24,34, and to move all Week 39 support from 34BWG1 to DSS-24,54.

Lunar-A agreed to change requested support using DSS-16 only.

Mars Exploration Rover-A agreed to move Week 36 cruise support from 34BWG1 to DSS-24,34,65.

Mars Express agreed to move Delta DOR support in Weeks 36-37 from DSS-15,25\54,55 to DSS-15,26\54.

Mars Global Surveyor agreed to move Week 36 support from DSS-24,34,54 to DSS-24,34,65.

MEGA agreed to reduce supports in Week 37 from 8 hours to 4 hours.

Nozomi agreed to move Delta DOR support in Week 36 from DSS-15\34 to DSS-24\45, and to move Week 36 routine support from DSS-43,34 to DSS-34, and from DSS-24,54 to DSS-24 only.

Polar agreed to move all 26m Playback and Realtime supports in Weeks 38 and 39 to DSS-27,46,54.

SIRTF agreed to change Week 36 support from 34BWG1 to DSS-24,34,65.

SOHO agreed to move supports in Weeks 36 and 37 from DSS-14 to DSS-16, and in Weeks 38 and 39 move 26m supports to DSS-16,46,54.

Ulysses agreed to change all routine supports to use split passes of 5-hour durations each at DSS-63,65 and DSS-14,24 daily in Weeks 37 and 38. Ulysses also agreed to use split passes of 5-hour durations each at DSS-63,65 and DSS-43,45 daily, in Weeks 36, 39.

Voyager 2 agreed to use DSS-43,45,34 for routine support in Weeks 36 and 38.

Wind agreed to change requested support in Week 36 using DSS-24,34.

2003 Contention Period - October - Weeks 40 - 44

Advanced Composition Explorer agreed to move 4 of 7 supports each in Weeks 43 from DSS-16 to DSS-27, and from DSS-16 to DSS-27,66 in week 44.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

Lunar-A agreed to change requested support in Weeks 40 and 41 using DSS-16 only.

Mars Exploration Rover-A agreed to change 1 DSS-15 cruise support to cruise/VLBI, and increase support from 8 hours to 9 hours, and change VLBI support at DSS-15\65,15\45 to DSS-45,65 to overlap cruise/VLBI in Week 44.

Mars Exploration Rover-B agreed to move two cruise supports from the 34HEF to the 70m in Week 44.

Mars Odyssey agreed to reduce 1 support from 7 hours to 4 hours, to accommodate Voyager 1 DTR playback at DSS-14 in Week 44.

Nozomi agreed to move Delta DOR support from DSS-15\34 to DSS-24\45.

Reference Frame Calibration agreed to move Cat M&E 24-hr support from Wk 44 to Wk 42. Move Clock Sync M-4 5-hr support from Wk 44 to Wk 41.

Space Geodesy Program did not accept the recommendation to delete 24-hour support in Week 43.

Note: P. Wolken, Project Customer Service Representative, could not accept the recommendation on the basis that she didn't have authority to do so from the Project.

Action Item #3: Pam Wolken accepted an Action Item to consult with the Project for a decision regarding all SGP recommendations made by RAPSO. One month allotted.

Ulysses agreed to move Week 43 support from DSS-65,54 to DSS-54,63.

2003 Contention Period - November - Weeks 45 - 48

DSS agreed to reduce 1 DSS-14 Maintenance support in Week 45 to 6 hours, to accommodate Voyager 1 ASCAL on DOY 308.

Mars Exploration Rover-A agreed to move 6 TCM passes in Wk 45 from the 34HEF to DSS-24,34,55. Mars Exploration Rover-A also agreed to change 2 approach/VLBI passes in Week 47, currently allocated using DSS-15,14 and DSS-65,63, to use DSS-14,63.

Mars Express agreed to move 2 capture passes in Week 48 currently allocated at DSS-54,55, to DSS-63.

Mars Global Surveyor agreed to move 6 passes in Weeks 47 and 48 currently allocated at DSS-26,34,55, to DSS-26, and 3-4 passes to DSS-49.

Mars Odyssey agreed to reduce 2 standalone passes in Week 45 to 6 hours (to be scheduled at DSS-43 on DOY 307 and 310 to avoid MERB EDL rehearsals), and use DSS-14,63 for the remaining 3 passes.

Nozomi agreed to change 1 routine pass in Week 45 allocated at DSS-43,34 to use DSS-34 only. Nozomi also agreed to change 1 approach pass in Week 47 allocated at DSS-34,43 to use DSS-43 only, and to change 1 routine pass allocated at DSS-34 to use DSS-43, and to change three TCM passes allocated at DSS-24,54, to use DSS-24,63.

Reference Frame Calibration agreed to move the Week 45 CAT M&E, to Week 48, and to use DSS-14\63 for support.

Voyager 2 agreed to reduce 3 DSS-34 8-hour passes in Week 45 to 5 hours. Voyager 2 also agreed to reduce 3 DSS-34 8-hour passes to 5 hours, and move 4 passes to DSS-43 in Week 48.

2003 Contention Period - December - Week 49

GOES-N does not agree to move launch after March 2004.

Action Item #5: B. Geldzahler is to coordinate NASA Code Y to NOAA support for GOES-N outside the 2003-2004 high activity period. R. Skidmore states that the GOES-N Project is aware of the contentions, and GSFC representatives will work with the Project for a decision to resolve the issues. Mr. Skidmore also stated that there was an agreement previously made that was supposed to prevent contentions with other Projects. Mr. Skidmore will provide a 60-day status report during the February 2003 RARB.

Mars Exploration Rover-A agreed to change 10 passes currently allocated at DSS-34,54,55, to use DSS-34,54,63.

Mars Global Surveyor agreed to change 10 passes currently allocated at DSS-26,34,55, to use 5 passes at DSS-25,26 and 4 passes at DSS-34,55, and MSPA 1 additional pass with Mars Odyssey at DSS-43,63.

Mars Odyssey agreed to MSPA 1 additional pass with Mars Global Surveyor at DSS-43,63.

Nozomi agreed to change 1 pass currently allocated at DSS-43,34 to use DSS-43 only for support.

2003 Contention Period - December - Week 50

Mars Exploration Rover-B agreed to change the 5 cruise passes currently allocated at DSS-15,43,65. to use 1 pass at DSS-43, 2 passes at DSS-25, and 2 passes at DSS-34,55.

Mars Global Surveyor agreed to change the 9 passes currently allocated at DSS-26,34,55. to use 5 passes at DSS-26. and 4 passes at DSS-34,55.

Nozomi agreed to use DSS-24\34 for Delta DOR support.

Reference Frame Calibration agreed to delete the 24-hour CAT M&E.

2003 Contention Period - December - Week 51

Mars Exploration Rover-B agreed to move 2 passes from the 70m to DSS-25,34,55.

Mars Odyssey agreed to move one 8-hour standalone DSS-43 pass to DSS-34.

Nozomi agreed to change request for 1 pass at DSS-43,34, and use DSS-34 for support.

Reference Frame Calibration agreed to delete the 24-hour CAT M&E support.

2003 Contention Period - December - Week 52

Mars Exploration Rover-B agreed to move 2 DSS-15 approach passes and 2 DSS-24 approach/VLBI passes to DSS-25,26. Mars Exploration Rover-B also agreed to move 2 DSS-54 approach/VLBI passes to DSS-55

Mars Global Surveyor agreed to change the 9 passes currently allocated at DSS-26,34,55, to use 5 passes at DSS-26, and 4 passes at DSS-34, 55 (2).

2004 Contention Period - January - Weeks 01

Deep Impact agreed to reduce one pass at DSS-15 and one at DSS-34 to 5 hours each, and increase pass duration at DSS-54 to 10-11 hours on DOY 004.

Mars Exploration Rover-B agreed to reduce 1 DSS-45 pass to 4 hours on DOY 004.

Mars Express agreed to reduce 1 pass at DSS-55 to 5 hours.
Mars Global Surveyor *did not agree* to change current support request to (8-hour passes assumed except as noted):

MSPA 4 passes with Mars Odyssey using DSS-25
MSPA 1 DSS-25 pass (4 hours) on DOY 004 with Mars Odyssey
MSPA 2 passes with Mars Odyssey using DSS-63
MSPA 1 pass with Mars Odyssey using DSS-43
Plan 1 pass using DSS-43
Plan 2 passes at DSS-15 prior to DOY 002
Plan 1 pass on DOY 004 of 5-6 hours using DSS-34
Plan 3 passes using DSS-49
Reduce 1 pass to 5 hours and use DSS-55

Mars Odyssey *did not agree* to change current support request to (8-hour passes assumed except as noted):

MSPA 4 passes with Mars Global Surveyor at DSS-25
MSPA 1 DSS-25 pass (4 hours) on DOY 004 with Mars Global Surveyor
MSPA 2 passes with Mars Global Surveyor using DSS-63
MSPA 1 pass with Mars Global Surveyor using DSS-43
Plan 2 passes using DSS-24
Plan 4 passes using DSS-49

Notes: S. Lineaweaver noted that the Week 01 recommendation is to resolve contention for EDL, DIF Launch, and Stardust.

R. Miller suggests that the Mars Program be allocated a fixed amount of support time, and allow the Mars Program the flexibility to resolve their own mission contentions within that allocated time.

D. Morris requests that the Mars Program agree that the 70-meter maintenance be preserved.

Action Item #6: R. Miller and C. Edwards took an Action Item to develop the planning envelope for the Mars Program to plan their critical support within. This is to preserve and assure other missions' committed support throughout this period, as well as needed DSS Maintenance as presently defined.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week, at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

2004 Contention Period - January - Weeks 02

Deep Impact agreed to maintain continuous tracking by changing support requested on 4 days; increase 4 DSS-15 and 4 DSS-54 passes to 10 hours, and reduce 4 DSS-34 passes to 4 hours.

Mars Global Surveyor *did not agree* to deleting 4 mapping passes at DSS-34,55, and MSPA 3 passes with Mars Odyssey at DSS-55 (recommendation adds 1 pass at Madrid). MGS has also *not agreed* to use DSS-49 for 2 passes, reducing to about 6.5 hours/pass.

Mars Odyssey *does not agree* to move 3 standalone 70m passes and MSPA with Mars Global Surveyor using DSS-55. M01O also *does not agree* to reduce 1 standalone pass to about 6.5 hours and move to DSS-49.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week, at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

Voyager 2 agreed to reduce 4 passes currently allocated at DSS-34,43,45, to 4 hours and use DSS-34,45 only for the remaining 3 passes.

2004 Contention Period - January - Weeks 03

Deep Impact agrees to change continuous requests on 4 days; increase 4 DSS-15 and 4 DSS-54 passes to 10 hours, and reduce 4 DSS-34 passes to 4 hours.

Mars Odyssey *did not agree* to move 2 standalone 70m passes to DSS-45, and move a third pass to DSS-65. M01O also *did not agree* to change the request for five 34BWG passes to 2 passes using DSS-25, and 3 split passes using 4 hours at DSS-34, and 4 hours at DSS-49, for 7-8 hours of contiguous tracking per split pass.

Mars Express *did not agree* to change capture support request to 2 passes at DSS-63, 1 pass at DSS-54, and 3 passes at DSS-55.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

Reference Frame Calibration agreed to move Week 03 24-hour CAT M&E to Week 06.

Voyager 2 agreed to reduce seven DSS-45 passes to 6 hours.

2004 Contention Period - January - Weeks 04

Mars Express *did not agree* to move 2 passes from DSS-63 to DSS-55.

Mars Global Surveyor *did not agree* to reduce 1 DSS-45 pass on DOY 025 to 4 hours, and use DSS-49 for 4 hours to equal 8 hours of contiguous tracking. MGS also *did not agree* to move 1 DSS-45 pass to DSS-49, reducing pass duration to 5.5 hours, and to MSPA 1 DSS-65 pass with Mars Odyssey.

Mars Odyssey *did not agree* to move 1 pass from DSS-34 to DSS-49, reducing pass duration to 5.5 hours. M01O also *did not agree* to delete 1 DSS-54 pass and MSPA 1 pass with Mars Global Surveyor at DSS-65, and move 1 DSS-54 pass to DSS-55.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

Reference Frame Calibration agreed to move the Week 04 24 hour CAT M&E to Week 07.

Voyager 2 agreed to reduce 1 DSS-43 pass to 4 hours.

2004 Contention Period - January - Weeks 05

Mars Exploration Rover-B did not agree to delete 2 standalone passes/Week, and MSPA 2 additional passes/Week with Mars Odyssey.

Mars Odyssey *did not agree* to delete 2 standalone passes/Week, and MSPA 2 additional passes/Week with Mars Exploration Rover-B. M01O also *did not agree* to move 2 standalone passes/Week from the 70m to DSS-26,34,55.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

Voyager 2 agreed to reduce 4 DSS-43 passes to 4 hours.

2004 Contention Period - February - Weeks 06 - 09

Mars Exploration Rover-A *did not agree* to delete 2 standalone passes/Week and MSPA 2 additional passes/Week with Mars Odyssey.

Mars Odyssey *did not agree* to delete 2 standalone passes/Week and MSPA 2 additional passes/Week with Mars Exploration Rover-A. M01O also *did not agree* to move 2 standalone 70m passes/Week to DSS-26,34,55.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

2004 Contention Period - March - Weeks 10 - 13

Mars Exploration Rover-A *did not agree* to delete 2 standalone passes/Week and MSPA 2 additional passes/Week with Mars Odyssey.

Mars Odyssey *did not agree* to delete 2 standalone passes/Week and MSPA 2 additional passes/Week with Mars Exploration Rover-A. Mars Odyssey *did not agree* to move 3 standalone passes/Week to the 34HEF.

Action Item #7: Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan.

MESSENGER agreed to use DSS-55 for Madrid support in Week 11, DOY 070 and 071, to accommodate the last two days of the Ulysses Jupiter encounter support and Mars Express.

Polar agreed to move 12 playback and 3 real-time passes in Week 10 to the 34BWG1 Subnet, to accommodate SOHO TSO Support.

SOHO agreed to move 2 routine passes in Week 10 to the 34BWG1 Subnet, to accommodate DSS Maintenance.

2004 Contention Period - April - Weeks 14 - 18

Advanced Composition Explorer agreed to change current support request in Weeks 16-18, and use 6 passes at DSS-27 and 1 pass at DSS-16,66, to accommodate downtime at DSS-46.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

Cluster agreed to remove DSS-15 and DSS-46 from SSO simultaneous tracking requests in Weeks 16-18, to accommodate downtime at DSS-15 and 46. On a best efforts (no impact to 70m users) basis, DSS-14 may replace DSS-15 during mid-range planning process.

Deep Impact agreed to change cruise requests in Weeks 16-18 to use DSS-26 instead of DSS-15 to accommodate downtime at DSS-15.

DSS Maintenance downtime has been approved at DSS-15 and 46. DSS agreed to delete preventative maintenance at DSS-15 and DSS-46 in Weeks 16-18.

Geotail agreed to use DSS-16,27,66 for support in Weeks 16-18 to accommodate downtime at DSS-46.

GSSR agreed to move Week 18 GODR support to Week 11 to accommodate downtime at DSS-15.

Mars Exploration Rover-A did not agree to delete 2 standalone passes per week and MSPA 2 additional passes per week with Mars Odyssey.

Mars Odyssey *did not agree* to delete 2 standalone passes/Week and MSPA 2 additional passes/Week with Mars Exploration Rover-A. M01O also *did not agree* to move 3 standalone passes/Week to the 34HEF in Weeks 14-15 or in Weeks 16-18 to move 3 passes/Week to DSS-26,45,65.

Polar agreed to change current support request in Weeks 16-18 and to use DSS-16,27,66 for 16 playback and 4 real-time passes and use the 34BWG1 for 12 playback and 3 real-time passes to accommodate downtime at DSS-46.

Reference Frame Calibration agreed to move Weeks 16 and 17 CAT M&E supports to Weeks 13 and 14. RFC declined to move Weeks 16 and 18 Clock Sync supports to Weeks 09 and 11. RFC accepted an alternate recommendation to use DSS14\43 for Clock Sync support in Weeks 16 and 18.

Space Geodesy Program agreed to move Week 17 Crustal Dynamics H-M4 support to Week 09.

SOHO agreed to remove DSS-46 from the resource request, and use DSS-16,34,66 for 9.5-hour passes, and DSS-16,27,34,66 for 1.6-hour pass in Weeks 16-18, to accommodate downtime at DSS-46.

Stardust agreed to remove DSS-15 from cruise request in Week 16-18, and use DSS-45 or 65 for support to accommodate downtime at DSS-15.

Voyager 1 agreed to change Week 18 DSS-14/15 DTR array request to DSS-14/26, to accommodate downtime at DSS-15.

2004 Contention Period - May - Weeks 19 - 22

Advanced Composition Explorer agreed to change current support request in Weeks 19-21, and use 6 passes at DSS-27 and 1 pass at DSS-16,66.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

Cluster agreed to remove DSS-15 from SSO and MSO simultaneous tracking requests in Weeks 19-22 and DSS-46 in Weeks 19-21. On a best efforts (no impact to 70m users) basis, DSS-14 may replace DSS-15 during mid-range planning process.

DSS Maintenance downtime approved. DSS has agreed to schedule antenna controller replacement at DSS-15 in Weeks 19-22, and servo drive replacement at DSS-46 in Weeks 19-21. DSS has also agreed to delete preventative maintenance at the respective antennas during the downtime.

Deep Impact agreed to change cruise and TCM requests to use DSS-26 instead of DSS-15.
Geotail agreed to use DSS-16,27,66 for support in Weeks 19-21.

GSSR agreed to move Weeks 20 and 22 GODR supports to Weeks 13 and 15.

Mars Exploration Rover-A agreed to delete 2 standalone passes/Week and MSPA 2 additional passes/week with Mars Odyssey in Week 19.

Mars Odyssey agreed to delete 2 standalone passes, and MSPA 2 additional passes with Mars Exploration Rover-A in Week 19. M01O also agreed to move 3 standalone passes to DSS-26,45,65.

Polar, in Weeks 19-21, agreed to change 26m support request and use DSS-16,27,66 for 16 playback and 4 real-time passes.

Reference Frame Calibration agreed to use DSS-14\45 or DSS-14\65 to support Week 22 CAT M&E and use DSS-14\63 to support Week 20 and 22 Clock Syncs.

SOHO agreed to delete Week 20-22 HSO support and move Week 19 TSO, as currently allocated, to Week 22. SOHO also agreed to use DSS-16,34,66, for seven 9.5-hour passes and DSS-16,27,34,66 for fourteen 1.6-hour passes in Weeks 19-21.

Stardust agrees to remove DSS-15 from request and use DSS-45,65 for support.

2004 Contention Period - June - Weeks 23 - 26

Cassini agreed to move 6 of 17 Critical Sequence supports in Week 26 from DSS-15,45,65 to DSS-34,55. Cassini also agreed to change TCM Day support in Week 25 at DSS-54,55 to DSS-65,55.

Deep Impact requested support using DSS-25,34,55 to accommodate DSS-15 Downtime in Weeks 23 and 24, and DSS-54 maintenance in Week 26 was approved.

GBRA agreed to reduce M-Wave Spect and Planet R/Ast supports in Weeks 24-26 from 9 hours to 4 hours.

Note: GBRA request that whenever possible, increase the 4-hour supports to a minimum of 6-hours for M-Wave Spect and R/A Planet R/Ast.

GBRA agreed to move two 8-hour Host Country supports at DSS-45 from Week 25 to Week 23.

GSSR agreed to move two 8-hour Asteroid 1998SF36 supports from Week 26 to Week 25, to accommodate DSS-14 maintenance. GSSR also agreed to delete Orbital Debris supports in Weeks 24 and 26.

Mars Odyssey agreed to change standalone Mapping support in Week 24 from the 70m to five 7-hour supports at DSS-43,63, and two split passes of 4-hours each at DSS-14,43. Mars Odyssey agreed to change 8-hour standalone support from the 70m to DSS-43,63 in Week 26.

Polar agreed to move 2-hour Realtime supports in Weeks 24-26 from the 34BWG1 to DSS-27.

SOHO agreed to move 8-hour HSO supports in Weeks 24-26 from DSS-34,54 to DSS-46,66.

Space Geodesy Program agreed to move support from Week 26 to Week 23.

Ulysses agreed to change support in Weeks 24-26 to six 5-hour split passes at DSS-24,34,43 and six 5-hour split passes at DSS-54,63.

Note: The original request was for six 10-hour supports.

Voyager 2 agreed to change seven 8-hour supports at DSS-45 to seven split passes of 4 hours each at DSS-43 and DSS-34, and reduce seven 4-hour supports at DSS-45 to six supports in Weeks 25 and 26.

2004 Contention Period - July - Weeks 27 - 31

Advanced Composition Explorer agreed to change 26m support in Week 29 to DSS-66 only.

Note: Goldstone DSS-27 antenna does not provide ranging. When DSS-27 is scheduled for ACE support, an Unattended Tracking support is required from any (26m or 34BWG1) station resource used by ACE to provide tracking data for that day.

DSS agreed to reduce routine maintenance to one 9.5-hour support at DSS-63 and delete Bearing and one routine maintenance at DSS-14 in Week 27.

Note: DSS-14 Bearing Maintenance is to be scheduled NIB to Antenna Controller Replacement in Weeks 32-40

GBRA agreed to reduce M-Wave Spectrometer supports from 9 hours to 4 hours in Weeks 27, 28, and 31. GBRA also agreed to reduce Planet R/Ast supports from 9 hours to 4 hours in Weeks 27 and 28.

Note: GBRA request that whenever possible, increase the 4-hour supports to a minimum of 6-hours for M-Wave Spect and R/A Planet R/Ast.

Lunar-A support in Week 29, requested support using DSS-16 has been accepted.

Mars Odyssey agreed to move 2 Mapping supports in Weeks 27 and 28, from the 70m to the 34HEF.

Mars Express agreed to change Bi-Static support from DSS-14,63 to DSS-14 in Weeks 27 and 28.

MESSENGER agreed to move supports from DSS-26,34,54 to DSS-26,34 in Weeks 29-31.

Polar agreed to move Playback and Realtime supports in Weeks 27 and 29 from 34BWG1 to DSS-27,26m and move 8 playback passes in Week 29 from 26m to DSS-27.

SOHO agreed to change 8-hour HSO supports in Weeks 27 and 29 at DSS-34,54 to split passes of 4 hours each, and use DSS-34,45 and DSS-54,65 (two 4-hour passes at DSS-34,45 and two 4-hour passes at DSS-54,65). SOHO also agreed to change 6 passes at DSS-46,66 to DSS-66, and the remaining 6 passes to split passes of 4 hours each at DSS-63,54 and DSS-65,45 in Week 29.

Space Geodesy Program agreed to move the 24-hour support at DSS-45 from Week 27 to Week 28.

Space Technology 5 agreed to move Week 29 supports from DSS-24,25 to DSS-24,26.

Ulysses requested support in Weeks 27-31 using 6 split passes of 5 hours each on the 34BWG1 and 6 split passes of 5 hours each on the 70m,34HEF have been accepted.

Voyager 1 agreed to move Week 27 support from DSS-65 to DSS-25,55.

Voyager 2 agreed to delete DSS-34 support and use planned 8-hour supports at DSS-45 in Week 27. Voyager 2 also agreed to reduce routine support from 16 hours to 8 hours and move supports at DSS-34,45 to DSS-43 and in Weeks 28, 30 and 31.

Wind requested support using DSS-24,54 in Weeks 27-31has been accepted. Wind agreed to add one 2-hour pre-maneuver pass per Week at DSS-34 in Weeks 28 and 29.

2004 Contention Period - August - Weeks 32 - 35

Deep Impact agreed to move support from DSS-15,34,54 to DSS-15,45.

DSS agreed to reduce DSS-46 and DSS-66 Maintenance to 4 hours in Weeks 33-35.

MESSENGER agreed to move support from DSS-26,34,54 to DSS-26,34 only.

Polar agreed to move Week 33 playback support from 34BWG1 to DSS-27,26m.

SOHO agreed to change all support in Weeks 33-35 to HSO continuous at 26m and DSS-27.

Ulysses agreed to change five to six 10-hour supports to split passes of 5 hours each using DSS-24, 54 and DSS-45, 65.

2004 Contention Period - September - Weeks 36 - 40

Deep Impact agreed to move Weeks 37 and 38 supports from DSS-15,34,54 to DSS-15,45.

DSS agreed to reduce DSS-46 and DSS-66 Maintenance to 4 hours in Week 36.

GBRA agreed to reduce M-Wave Spect supports in Weeks 37-40 from 9 hours to 4 hours.

Note: GBRA request that whenever possible, increase the 4-hour supports to a minimum of 6-hours for M-Wave Spect and R/A Planet R/Ast.

GBRA also agreed to move RA500 SOC-M4 support from Week 37 to Week 36 and delete VLBA SOC-M4 support in Week 36.

MESSENGER requested support using DSS-26,34 only has been accepted.

SOHO agreed to change all support in Week 36 to HSO continuous and move Week 37 TSO support from the 34BWG1 to 26m.

Ulysses agreed to change six 10-hour supports in Week 37 at DSS-43,63, to 6 split passes of 5 hours each, using DSS-43,63 and DSS-65,45 (5 passes at DSS-43,63 and 5 passes at DSS-65,45). Ulysses also agreed to change six

10-hour supports at DSS-34,54 in Weeks 36, 38, and 39, to split passes of 5 hours each using DSS-24,54 and DSS-65,45 (5 passes at DSS-24,54 and 5 passes at DSS-65,45).

Voyager 1 agreed to move Week 37 routine support from DSS-43,63 to DSS-25,55.

Wind agreed to move routine support in Weeks 36-38 from 34BWG1 to DSS-24,54 only.

2004 Contention Period - October - Weeks 41 - 44

DSS-34 Proposed X/X Ka-band Downtimes Proposal (Weeks 42 - 49) and recommendations were withdrawn and not addressed due to a conflict with the Genesis Back-up Orbit support. A new downtime proposal will be presented at the February 2003 RARB.

Deep Impact agreed to move Weeks 41-43 support from DSS-15,34,54 to DSS-15,45,65.

GBRA agreed to change 24-hour Host Country support in Week 42 at DSS-43 to three 8-hour supports. GBRA also agreed to reduce M-wave Spect and Planet R/Ast support in Week 41and 42 from 9 hours to 4 hours.

Note: GBRA requests that whenever possible, they want to increase the 4-hour supports to a minimum of 6-hours for M-Wave Spect and R/A Planet R/Ast.

Mars Express agreed to move 3 of 7 Orbital Science supports in Week 42 from the 34BWG1 to DSS-26. Requested support in Weeks 41 and 42 for R/S Solar Corona 7.9-hour passes using DSS-63 has been accepted. MEX also agreed to change 5-hour supports in Week 41 from DSS-14,63 to DSS-14,54, to accommodate DSS-63 maintenance.

SOHO agreed to move Week 41 TSO support from the 34BWG1 to DSS-27,26m.

Polar agreed to move 6 of 12 playback supports in Week 41 from 34BWG1 to DSS-27, 26m.

2004 Contention Period - November - Weeks 45 - 48

None.

2004 Contention Period - December - Week 49 - 53

None.

2005 Contention Period - January - Weeks 01 - 04

Chandra agreed to move 7 of 21 passes from the 34BWG1 to the 26m and increase support to 2 hours in Weeks 01-03.

Mars Express agreed to move 3 passes from DSS-24,54 to DSS-26,54 to accommodate Wind TCM in Week 02.

Mars Odyssey agreed to move support from DSS-25,34,54 to DSS-25,34,65 in Weeks 01-03.

Polar agreed to change support from the 26m to DSS-27,46,66 in Week 01.

2005 Contention Period - February - Weeks 05 - 08

Cassini agreed to change Tour support from DSS-14/25,63/65 to DSS-14/25,63/55 in Week 08.

CONTOUR agreed to change EGA support from the 34HEF to DSS-15,45,55 in Week 08.

DSS requested DSS-65 downtime has been accepted. DSS agreed to Delete Maintenance on DSS-65 in Week 08.

Stardust agreed to change routine support from the 34HEF to DSS-15,45 in Week 08.

Space Geodesy Program agreed to move Crustal Dynamics support from Week 08 to Week 07.

2005 Contention Period - March - Weeks 09 - 13

Cassini agreed to change Tour support from DSS-14/25,63/65 to DSS-14/25,63/55 in Weeks 09-13.

CONTOUR agreed to change EGA support from the 34HEF to DSS-15,45,55 in Week 09.

DSS agreed to requested DSS-65 downtime. Delete Maintenance on DSS-65.

GBRA agreed to reduce DSS-14 M-Wave Spect and Planet R/Ast in Week 10 from 9 hours to 4 hours.

Reference Frame Calibration agreed to change DSS-15/65 Clock Sync support to DSS-14/63.

Rosetta agreed to change Swingby support from DSS-15,24,65 to DSS-15,24,54 in Weeks 10-13.

Stardust agreed to change routine support from the 34HEF to DSS-15,45.

Space Geodesy Program agreed to move DSS-65 Crustal Dynamics support from Week 12 to Week 15.

2005 Contention Period - April - Weeks 14 - 17

DSS-63 Antenna Controller Downtime (ACR) Proposal (Weeks 16 – 22) and recommendations were withdrawn and not addressed, due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-63 ACR downtime proposal were also withdrawn.

Cassini agreed to change Tour support in Week 14 from DSS-14/25,63/65 to DSS-14/25,63/55, but did not agree to change Tour support in Weeks 16 and 17 from DSS-14,63 to DSS-14 and DSS-14/25,63/65 to DSS-14/25.

DSS requested DSS-65 downtime was accepted and DSS agreed to delete DSS-65 Maintenance in Week 14.

DSS 63 Downtime
Recommendation withdrawn. No ULP change required.

Action Item #8: N. Lacey took an action to recommend a new plan for DSS-63 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

Microwave Anisotropy Probe agreed to change routine support from the 70m to DSS-14,43 in Weeks 16 and 17.
Recommendation withdrawn. No ULP change required.

Mars Express agreed to change R/S Bi-Static support from DSS-14,63 to DSS-14 in Weeks 16 and 17.
Recommendation withdrawn. No ULP change required.

Nozomi agreed to change R/S support from DSS-14,63 to DSS-14 in Weeks 16 and 17.
Recommendation withdrawn. No ULP change required.

Reference Frame Calibration agreed to move DSS-15\45,15\65 CAT M&E 24-hour support from Week 17 to Week 18.

Rosetta agreed to change Swingby support from DSS-15,24,65 to DSS-15,24,54 in Week 14.

Stardust agreed to change routine support from the 34HEF to DSS-15,45 in Week 14.

SIRTF agreed to change routine support from the 70m to DSS-14,43,65 in Weeks 16 and 17.
Recommendation withdrawn. No ULP change required.

Voyager 1 agreed to change routine Uplink support from the 70m to DSS-14,43 in Weeks 16 and 17.
Recommendation withdrawn. No ULP change required.

2005 Contention Period - May - Weeks 18 - 21

DSS-63 Antenna Controller Downtime (ACR) Proposal (Weeks 16 – 22) and recommendations were withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-63 ACR downtime proposals were also withdrawn.

Cassini *does not agree* to change Tour support from DSS-14,63 to DSS-14 or to change DSS-14/25,63/65 to DSS-14/25.

DSS 63 Downtime
Recommendation withdrawn - No ULP change required.

Action Item #8: N. Lacey took an action to recommend a new plan for DSS-63 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

GBRA agreed to change M-Wave Spect support from the 70m to DSS-14,43 and change DSS-14\63 VLBA SOC-M4 support to only DSS-14 in Week 19.
Recommendation withdrawn. No ULP change required.

Microwave Anisotropy Probe agreed to change routine support from the 70m to DSS-14,43.
Recommendation withdrawn. No ULP change required.

Mars Express agreed to change R/S Bi-Static support from DSS-14,63 to DSS-14 only.
Recommendation withdrawn. No ULP change required..

Nozomi agreed to change R/S support from DSS-14,63 to DSS-14 only.
Recommendation withdrawn. No ULP change required.

SIRTF agreed to change routine support from the 70m to DSS-14,43,65.
Recommendation withdrawn. No ULP change required.

Voyager 1 agreed to change routine Uplink support from the 70m to DSS-14,43.
Recommendation withdrawn. No ULP change required.

2005 Contention Period - June - Weeks 22 - 26

DSS-63 Antenna Controller Downtime (ACR) Proposal (Weeks 16 – 22) was withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on the DSS-63 ACR downtime proposal were also withdrawn.

DSS 63 Downtime
Recommendation withdrawn. No ULP change required.

Action Item #8: N. Lacey took an action to recommend a new plan for DSS-63 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

GBRA agreed to change M-Wave Spect from the 70m to DSS-14,43.
Recommendation withdrawn. No ULP change required.

Microwave Anisotropy Probe agreed to change routine support from the 70m to DSS-14,43
Recommendation withdrawn. No ULP change required..

Mars Express agreed to change R/S Bi-Static support from DSS-14,63 to DSS-14 only.
Recommendation withdrawn. No ULP change required.

Nozomi agreed to change RS support from DSS-14,63 to DSS-14 only
Recommendation withdrawn. No ULP change required.

SIRTF agreed to change routine support from the 70m to DSS-14,43,65
Recommendation withdrawn. No ULP change required.

Voyager 1 agreed to change routine Uplink support from the 70m to DSS-14,43
Recommendation withdrawn. No ULP change required.

2005 Contention Period - July - Weeks 27 - 30

DSS-43 Antenna Controller Downtime (ACR) Proposal (Weeks 28 - 34) and recommendations were withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-43 ACR downtime proposal were also withdrawn.

Cluster agreed to exclude DSS-43 from the SSO support at DSS-46/34/45/43 in Weeks 28-30 and also agreed to exclude DSS-43 from the MSO support at DSS-46/34/45/43 in Week 28.
Recommendation withdrawn. No ULP change required.

DSS 43 Downtime
Recommendation withdrawn. No ULP change required.

Action Item #9: N. Lacey took an action to recommend a new plan for DSS-43 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

GBRA agreed to delete DSS-43 Host Country support in Week 29 and change M-Wave Spect support from the 70m to DSS-14,63 in Weeks 28-30.
Recommendation withdrawn. No ULP change required.

Microwave Anisotropy Probe agreed to change routine support from the 70m to DSS-14,63 in Weeks 28-30.
Recommendation withdrawn. No ULP change required.

SIRTF agreed to change routine support from the 70m to DSS-14,45,63 in Weeks 28-30.
Recommendation withdrawn. No ULP change required.

Voyager 1 agreed to change routine Uplink support from the 70m to DSS-14,63 in Weeks 28-30.
Recommendation withdrawn. No ULP change required.

Voyager 2 agreed to change routine Uplink support from DSS-43 to DSS-34 and change routine support from DSS-43,45 to DSS-34,45 in Weeks 28-30
Recommendation withdrawn. No ULP change required.

2005 Contention Period - August - Weeks 31 - 34

DSS-43 Antenna Controller Downtime (ACR) Proposal (Weeks 28 - 34) and recommendations were withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-43 ACR downtime proposal were also withdrawn.

Cluster agreed to exclude DSS-43 from the SSO DSS-46/34/45/43 support.
Recommendation withdrawn. No ULP change required.

DSS requested DSS-43 downtime was not accepted. DSS did not agree to Delete DSS-43 Bearing and Routine Maintenance in Weeks 31-34.
Recommendation withdrawn. No ULP change required.

Action Item #9: N. Lacey took an action to recommend a new plan for DSS-43 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

GBRA agreed to move Host Country DSS-45 support from Week 32 to Week 31.

GSSR agreed to reduce one Asteroid 1992UY4 at DSS-14 pass to 4 hours on DOY 218.

Microwave Anisotropy Probe agreed to change routine support from the 70m to DSS-14,63.
Recommendation withdrawn. No ULP change required.

Reference Frame Calibration agreed to move Clock Sync support from Week 33 to Week 34.

SIRTF agreed to change routine support from 70m to DSS-14,45,63.
Recommendation withdrawn. No ULP change required.

Voyager 1 agreed to change routine Uplink support from the 70m to DSS-14,63.
Recommendation withdrawn. No ULP change required.

Voyager 2 agreed to change routine Uplink support from DSS-43 to DSS-34, change routine support from DSS-43,45 to DSS-34,45, and in Weeks 32-34 reduce 16-hour supports to 8 hours.
Recommendation withdrawn. No ULP change required.

2005 Contention Period - September - Weeks 35 – 39

DSS-24 Downtime Proposal for X/X Ka-Band (Weeks 35 – 41) was approved during the RARB.
However, on September 11, 2002, the X/X Ka-Band contact person notified the Resource Allocation Process via John Cucchissi that the downtime should be in 2006 via 2005. The downtime proposal and recommendations were withdrawn and the ULP updates were reversed.

DSS-45 Antenna Controller Downtime (ACR) Proposal (Weeks 36 – 42) and recommendations were withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-45 ACR downtime proposal were also withdrawn.

Cluster agreed to exclude DSS-45 from the MSO support at DSS-46/34/45/43 in Week 36, and exclude DSS-24 from the SSO support at DSS-16/27/24/15 in Week 35.
Recommendation withdrawn. No ULP change required.

DSS requested DSS-24 and DSS-45 downtimes have been approved. DSS has agreed to delete DSS-24 Maintenance. DSS has also agreed to delete DSS-45 Maintenance in Weeks 36-39.
Recommendation for DSS-24 and DSS-45 downtime withdrawn. No ULP change required.

Chandra agreed to move 14 of 21 passes from 34BWG1 to DSS-34,54 and also agreed to move remaining 7 passes to DSS-16 and increase support to 2 hours.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

GBRA agreed to move DSS-45 Host Country support from Week 37 to Week 35.
Recommendation withdrawn. No ULP change required.

Mars Express agreed to change Orbital Science support from DSS-24,54 to DSS-26,54 in Weeks 36-39.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

Polar agreed to move 5 R/T passes from DSS-16 to DSS-27 in Weeks 36-38.

Rosetta agreed to change Swingby support from DSS-15,65,24 to DSS-15,65,26 in Weeks 36-39.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

Reference Frame Calibration agreed to change CAT M&E support from DSS-15\45,15\65 to DSS-14\43,15\65 in Week 36.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

Space Geodesy Program agreed to delete DSS-45 Crustal Dynamics support in Week 39.
Recommendation withdrawn. No ULP change required.

SIRTF agreed to change routine support from the 34HEF to DSS-15,43,65 in Weeks 36-39.
Recommendation withdrawn. No ULP change required.

Voyager 2 agreed to change routine support from DSS-43,45 to DSS-43,34 in Weeks 36-39.
Recommendation withdrawn. No ULP change required.

Wind agreed to change routine support from the 34BWG1 to DSS-34,54.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

2005 Contention Period - October - Weeks 40 – 43

DSS-24 Downtime Proposal for X/X Ka-Band (Weeks 35 – 41) was approved during the RARB. However, on September 11, 2002 the X/X Ka-Band contact person notified the Resource Allocation Process via John Cucchissi that the downtime should be in 2006 via 2005. The downtime proposal and recommendations were withdrawn and the ULP updates were reversed.

DSS-45 Antenna Controller Downtime (ACR) Proposal (Weeks 36 – 42) and recommendations were withdrawn and not addressed due to a conflict with Cassini support requirements. A new downtime period will be presented at the February RARB. All recommendations based on DSS-45 ACR downtime proposal were also withdrawn.

Chandra agreed to move 14 of 21 passes from 34BWG1 to DSS-34,54 and move remaining 7 passes to DSS-16 and increase support to 2 hours.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

Note: Greg Wright reminded the Board of the fact that Chandra was designed to be supported by 34-meter antennas.

DSS requested DSS-24 and DSS-45 downtimes be accepted. DSS agreed to delete DSS-24 Maintenance in Weeks 40 and 41. DSS also agreed to delete DSS-45 Maintenance in Weeks 40-42.
Recommendations for DSS-24 and DSS-45 downtime withdrawn. ULP change reversed.

Mars Express agreed to change Orbital Science support from DSS-24,54 to DSS-26,54.
Recommendation for DSS-24 downtime withdrawn. ULP change reversed.

Space Geodesy Program agreed to move DSS-45 Crustal Dynamics support from Week 40 to Week 43.
Recommendation withdrawn. No ULP change required.

SIRTF agreed to change routine support from the 34HEF to DSS-15,43,65.
Recommendation withdrawn. No ULP change required.

Voyager 2 agreed to change support from DSS-43,45 to DSS-43,34.
Recommendation withdrawn. No ULP change required.

2005 Contention Period - November - Weeks 44 - 47

Mars Express agreed to change Orbital Science support from DSS-24,63 to DSS-14,63 in Week 46.

Stardust agreed to change TCM support from DSS-25,34,54 to DSS-15,34,65 in Week 46.

Space Geodesy Program Crustal Dynamics agreed to move 24-hour support from Week 46 to Week 44.

Stereo Ahead agreed to change launch support from DSS-25,34,55 to DSS-24,34,55 in Week 46.

Voyager 2 agreed to reduce DSS-45 routine support from 16 hours to 8 hours in Week 44 and 46.

2005 Contention Period - December - Week 48 - 52

Mars Express agreed to move Orbital Sci./Occultation support from the 34BWG1 to DSS-14,63 in Weeks 48-51.

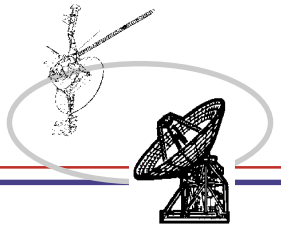
Mars Odyssey agreed to change requested relay support to DSS-25,43,55 in Weeks 48 and 51, change to DSS-25,45,65 in Week 49, and change toDSS-24,45,63 in Week 52.

Stardust agreed to change TCM support from DSS-25,34,54 to DSS-25,45,65 in Weeks 48 and 52.

Voyager 2 agreed to reduce 16-hour supports to 8 hours in Weeks 49 and 52.

Action Item Summary:

#	Year	Month	System	Responsible	Due	Status	Action
1	2003	January - December	DSMS Plans & Commit.	R. Miller	9/19/02	Pending	Investigate and Negotiate the feasibility of alternate assets providing current DSN Catalog Maintenance and Enhancement (CAT M&E) radio sources. (Reference Action Item 2 from February 12, 2002 RARB)
2			DSMS Engineering	J. Statman	9/19/02	Open	Provide date when 810-5 will be updated with revised G/T values based upon new X/X/Ka feeds on the 34m BWG. (Reference page 28 of DSMS Engineering presentation.)
3	2003	July - August	GSSR & Mars Prgm.	A. Haldeman C. Edwards	11/11/02	Open	Investigate and Negotiate the conflicting requirements for GSSR-Mars Landing Survey vs. ongoing Mars Program Spacecraft support.
4	2003	October	SGP	P. Wolken	9/19/02	Open	Consult with the project for a decision regarding all SGP recommendations made by RAPSO and provide RARB Representative authority to negotiate recommendations that reduce SGP support.
5	2003	December	NASA Hq. Code S	B. Geldzahler	10/17/02	Open	Coordinate NASA Code Y to NOAA support for GOES N to be outside the 2003 – 2004 High Activity period. R. Skidmore states that the GOES-N project is aware of the contentions and GSFC representatives will work with the project for a decision to resolve the issues.
6	2003 -2004	December - April	DSMS Plans & Commit. & Mars Prgm.	R. Miller C. Edwards	10/11/02	Open	Develop planning envelope for Mars Program to plan their critical support within. This is to preserve and assure other missions' committed support throughout this period as well as needed DSS Maintenance as presently defined.
7	2003 -2004	December - April	Mars Prgm.	B. Arroyo	6/1/03	Open	Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 to clarify the scope of resources in which to plan to.
8	2005	April - June	RAPSO	N. Lacey	10/17/02	Open	Coordinate new plan for DSS-63 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.
9	2005	July	RAPSO	N. Lacey	10/17/02	Open	Coordinate new plan for DSS-43 Antenna Controller Replacement Task with DSMS Engineering based upon newly defined requirements provided by Cassini.

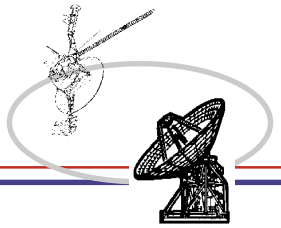


Agenda

• INTRODUCTION	B. Weber	8:30
• OVERVIEW, ACTION ITEMS, CONTENTION SUMMARY	G. Burke	8:45
• NASA HQ PERSPECTIVE		
– Office of Space Science	C. Holmes	9:00
• JPL DSMS ENGINEERING PROGRAM OFFICE	J. Statman	9:15
• JPL DSMS OPERATIONS PROGRAM OFFICE	J. Wackley	9:30
• RESOURCE CONTENTIONS		
– Analysis & Recommendations	N. Lacey	9:45
– Responses	Projects	
– Discussion / Decisions	All	
• NEW ACTION ITEMS & SUMMARY	G. Burke	

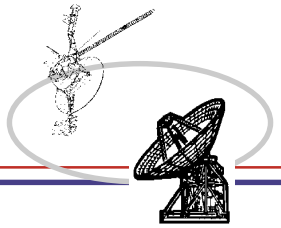
- LUNCH BREAK -

• '03-'04 PREPARATIONS	R. Miller	~1:30



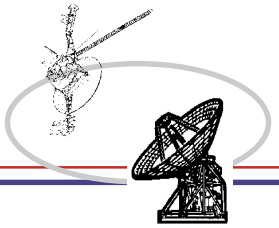
Review Board Members

Bill Weber	JPL	Chairman
Gene Burke	JPL	Resource Allocation Planning & Scheduling Office Mgr
Arden Albee	Caltech	Mars Global Surveyor Project Scientist
Irene Bibyk	GSFC	ST-5 Project Representative
Donald Burnett	Caltech	Genesis Project Scientist
Al Cangahuala	JPL	Reference Frame Calibration Project Manager
Albert Chang	JPL	Nozomi, Lunar-A Project Representative
Joy Crisp	JPL	Mars Exploration Rover Project Scientist
Alan Cummings	Caltech	Voyager Project Scientist Representative
Peter Doms	JPL	Deep Space Mission System (DSMS) Manager
Tom Duxbury	JPL	Stardust Project Manager
Bob Farquhar	APL	MESSENGER Mission Manager, CONTOUR
John Gagosian	GSFC	TDRS I, J Project Manager Representative
David Gallagher	JPL	SIRTF Project Manager
Roger Gibbs	JPL	Mars 2001 Odyssey Deputy Project Manager



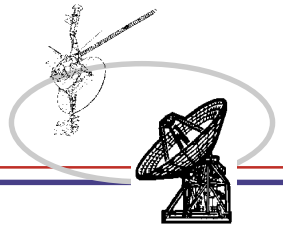
Review Board Members

Ike Gillam	HTSI	CSOC JPL Site Manager
Dick Goldstein	JPL	Goldstone Orbital Debris Radar
Jim Graf	JPL	Mars Reconnaissance Orbiter Project Manager
Dwight Holmes	JPL	INTEGRAL, Rosetta Representative
Richard Horttor	JPL	Mars Express Orbiter Project Manager
Torrence Johnson	JPL	Galileo Project Scientist
Mike Klein	JPL	Radio Astronomy Project Manager
Ron Mahmot	GSFC	Space Science Mission Operations Project Manager (ISTP, ACE, Image, MAP)
Ed Massey	JPL	Ulysses/Voyager Project Manager
Dennis Matson	JPL	Cassini Program Scientist
Rich Miller	JPL	DSMS Plans & Commitments Office Manager
Bob Mitchell	JPL	Cassini Project Manager
Brian Muirhead	JPL	Deep Impact Project Manager
Dan Ossing	APL	STEREO Project Representative



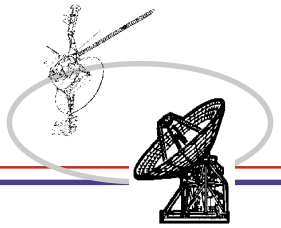
Review Board Members

Steve Ostro	JPL	GSSR Project Scientist
Bob Preston	JPL	U.S. Space VLBI Project Scientist
Chet Sasaki	JPL	Genesis Project Manager
Steve Saunders	JPL	Mars 2001 Odyssey Mission Project Scientist
Rance Skidmore	Omitron	GOES Project Manager Representative
Martin Slade	JPL	GSSR Project Manager
Ed Smith	JPL	Ulysses Project Scientist
Joel Smith	JPL	Muses-C, U.S. Space VLBI Project Manager
Joe Statman	JPL	DSMS Engineering Program Office Manager
Eileen Theilig	JPL	Galileo Project Manager
Pete Theisinger	JPL	Mars Exploration Rover (MER) Project Manager
Tom Thorpe	JPL	Mars Global Surveyor Project Manager
Phil Varghese	JPL	Planetary Flight Projects Mission Management Office
Joe Wackley	JPL	DSMS Operations Office Program Manager
Greg Wright	MSFC	Chandra Project Manager Representative



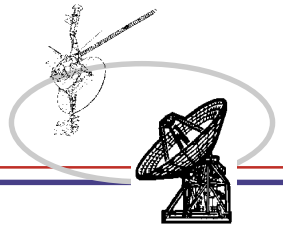
Welcome and Introduction

Bill Weber
Director, Interplanetary Network Directorate



Introduction

- Welcome to the Resource Allocation Review
- Purpose of the Review
  - Board was established to provide control of tracking requests for the 26, 34, and 70 meter Subnets
  - Board recommends mission resource allocations and assists the DSMS in capacity planning
    - Conflicts in 2003 through 2005 needing resolution
    - Requirements 2003 through 2012
- Reminder: IND is the facilitator of this collegial, consensus process, not the decision maker



Overview

Parkes Radiotelescope: DSS-49

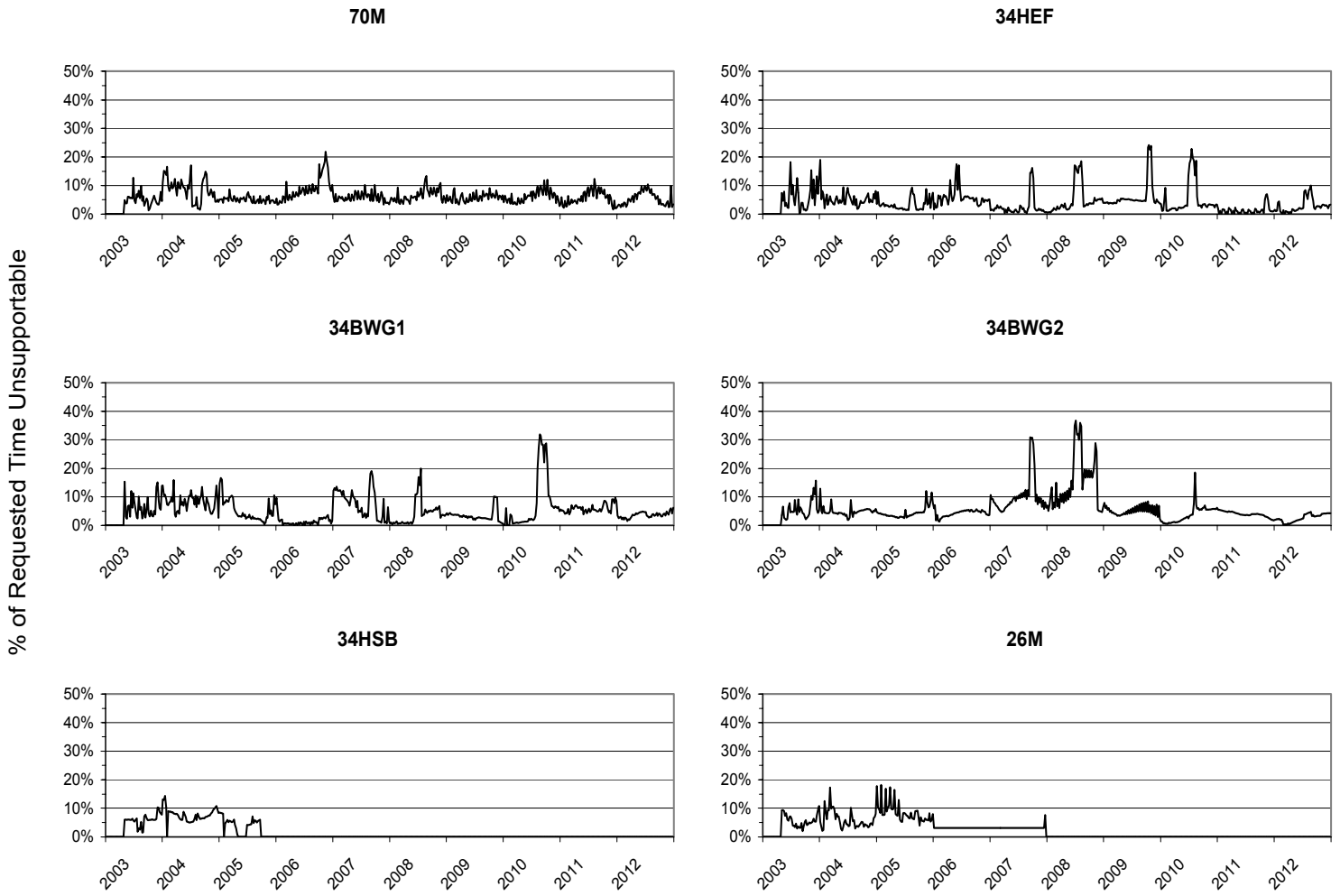
Action Items

Contention Summary

E. S. Burke

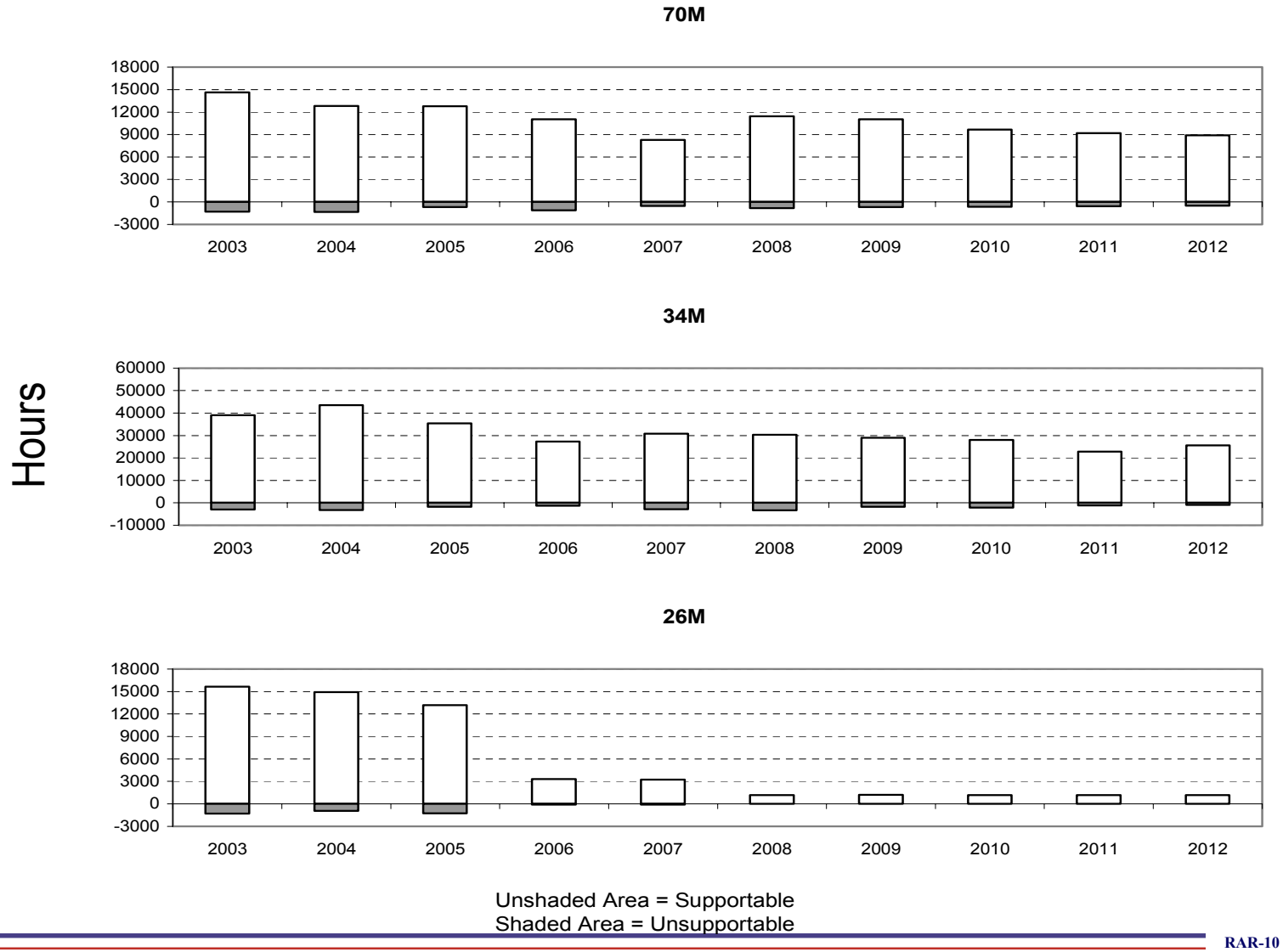
JPL

Projected Unsupportable Time Summary

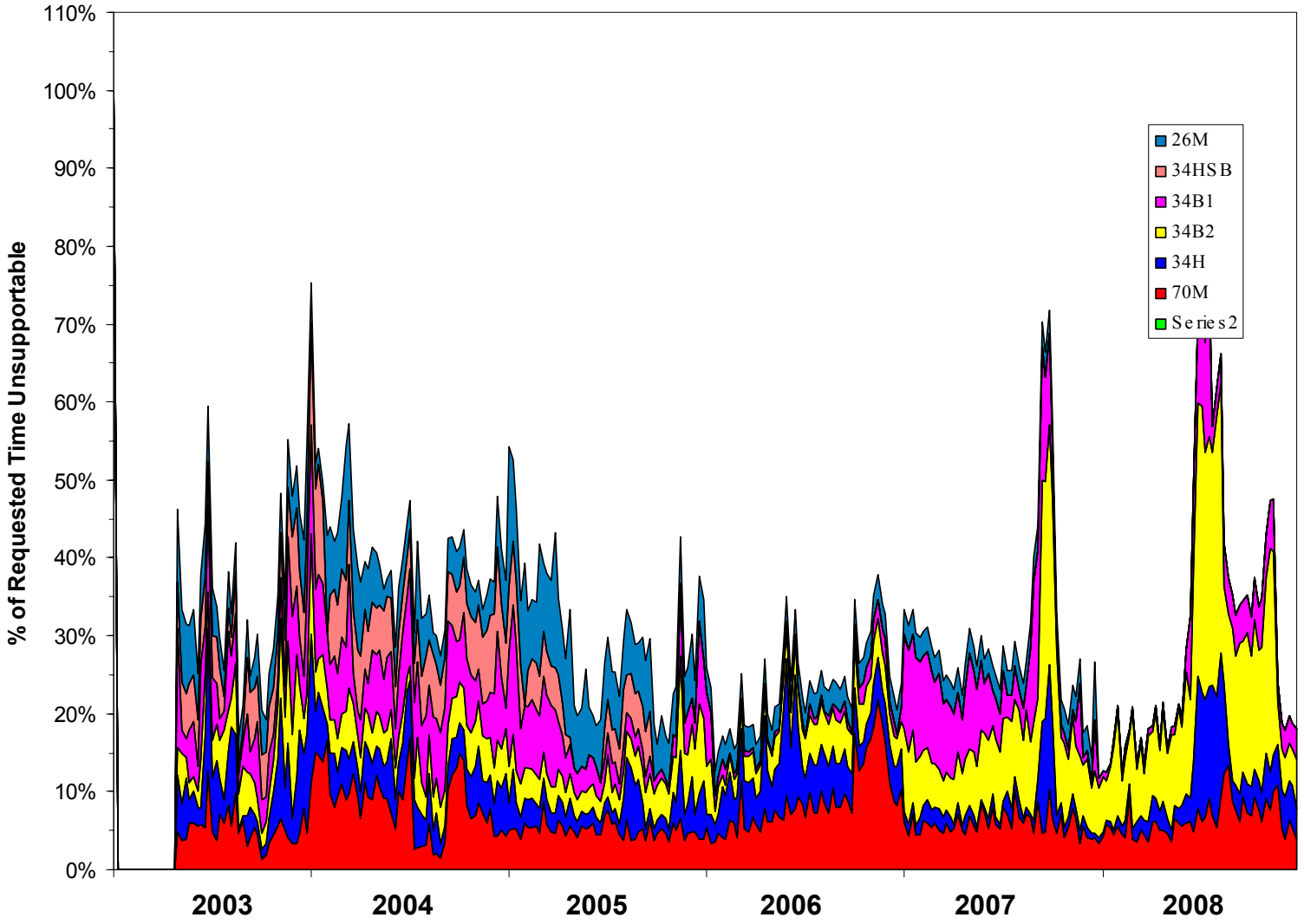


$$\text{Projected Lost Time} = \frac{\text{Expected Lost Time}}{\text{Total Requested Resource Usage Time}}$$

Projected Yearly Supportable Time Summary

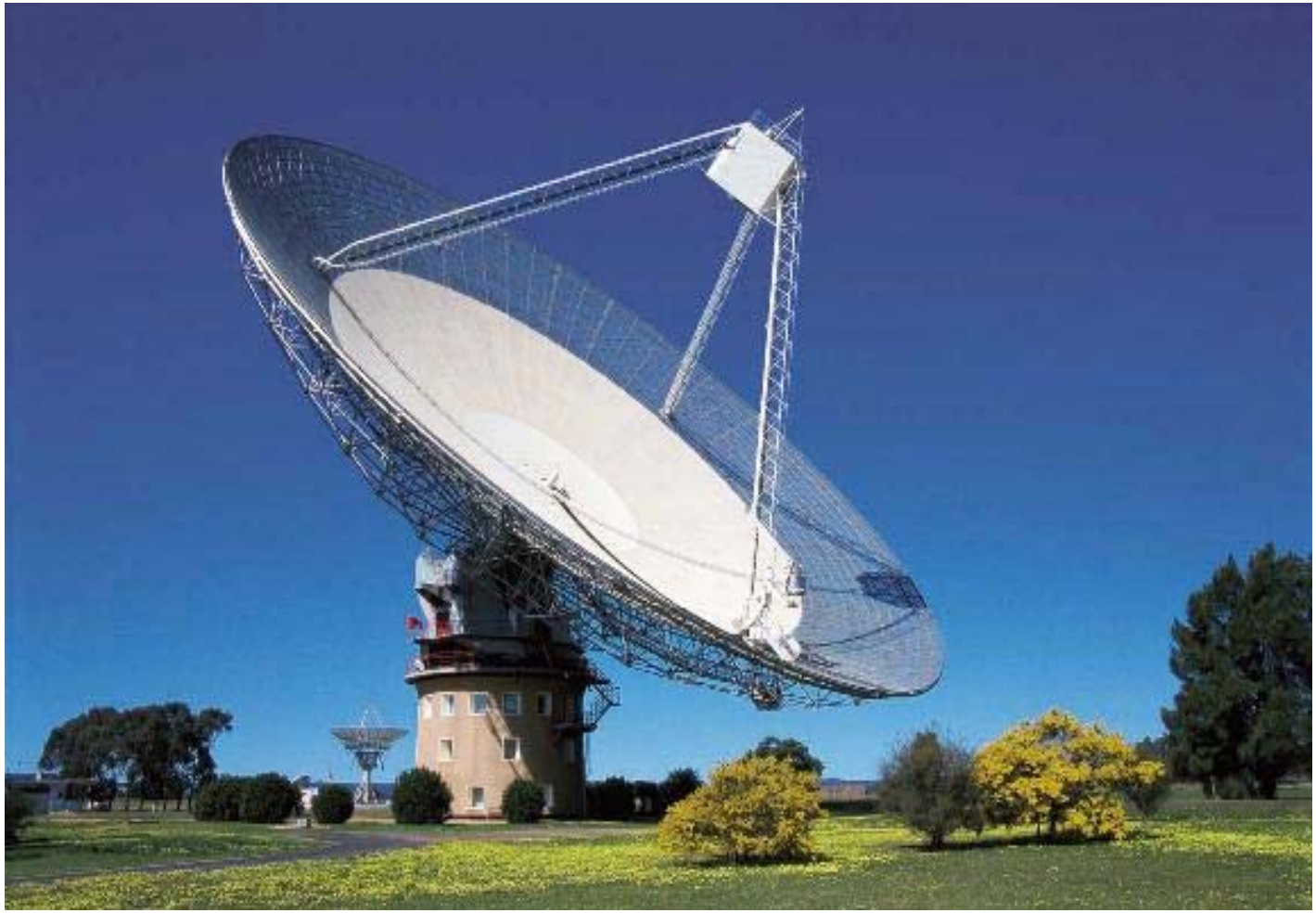


All Subnets

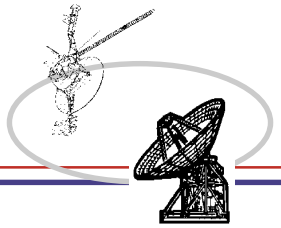

% of Requested Time Unsupportable
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2003
2004
2005
2006
2007
2008
26M
34HSB
34B1
34B2
34H
70M
Series2

Alternate Asset #1: DSS-49 (Parkes)

The Parkes Radiotelescope

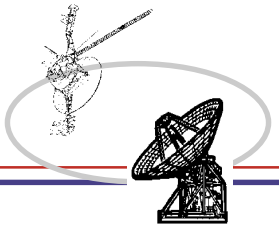


http://www.parkes.atnf.csiro.au/images/media_images/parkes_radio_telescope.jpg



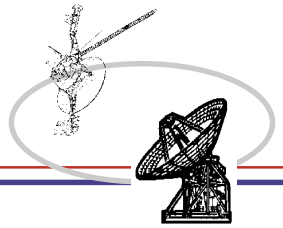
Alternate Asset: DSS-49 (Parkes)

- Ops Agreement in Draft
  - Training and Proficiency (15 Sep '03 – 03 Nov '03)
  - Operational Support (03 Nov '03 – 01 Mar '04)
- Operational Usage
  - Assumes 1 Hour Total For Set Up and Breakdown
  - Telemetry Only
  - Tracking Coverage Falls Within Canberra Tracking Capability
  - Tracking Duration is of Limited Duration (30 Degree Elevation Constraint)



Set Up Time

- MSPA (Regardless of NSP):
  - Minimum of 30 Minutes Per Spacecraft
  - Uplink and Command Adds 15 Minutes
  - Ranging Adds 15 Minutes
  - Examples: (Dependent Upon Uplink and Range Requirements)
    - Mars Odyssey and MGS – Ranges Between 1.5-2 Hours
    - Mars Odyssey and MER (1 S/C) – Ranges Between 1.5-1.75 Hours
    - Mars Odyssey and MER (2 S/C) – Ranges Between 2-2.5 Hours
- NSP Era:
  - Forecast Uses Current Guidelines through 31 August 2003
  - Forecast Uses 30 minutes beginning 1 September 2003
    - High Power Transmitter Use Adds 30 Minutes

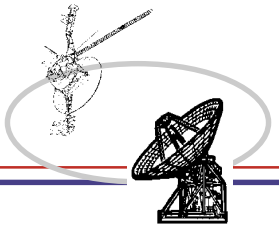


Action Item Status From 12 February 2002 RARB

(Resource Allocation Review Board)

David G. Morris

JPL



Action Item Summary

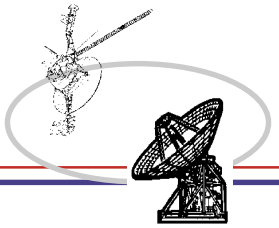
AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
1	**2004**	**January**	**MER**	**J. Erickson**	**6/1/2002**	**Closed**

ACTION: Provide Final Landing Site coordinates (SPK file) for both Rovers one year prior to launch. (Reference A.I. #7 of August 13, 2001 RARB)

RESPONSE: (6/4/2002) Due to environmental analysis of the leading candidate landing site regions; MER is initiating a search for potential new, safe, candidate landing sites. "The landing site selection strategy now calls for a selection as late as June 2003. … MER must have the flexibility to arrive over any DSN complex until that selection is made, and any surface planning must take into account the uncertainty in view periods."

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
2	**2003**	**January-December**	**DSMS P & C**	**R. Miller**	**4/18/2002**	**Open**

ACTION: Investigate and Negotiate the feasibility of alternate assets providing current DSN Catalog Maintenance and Enhancement (CAT M&E) radio sources.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
03	**2003**	**January-December**	**SGP**	**N. Lacey** **P. Wolken**	**4/18/2002**	**Closed**

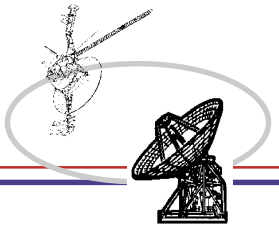
ACTION: As a result of recommending deletion of the entire 2003 request of Space Geodesy Program, provide a listing of opportunities to the Project to assist in their re-planning a reduced (hours) experiment.

RESPONSE: (4/16/02) The deletion of the 34H Antenna Controller Replacement tasks in 2003 has created 24-hour support opportunities for SGP as follows:

DSS-15: Weeks 14, 15, 16, 17 and 18 (April 2 through May 6).

DSS-45: Weeks 37, 38, 39, 40, 41, 42 and 43 (September 10 through October 28).

DSS-65: Weeks 37, 38, 39, 40, 41, 42 and 43 (September 10 through October 28).

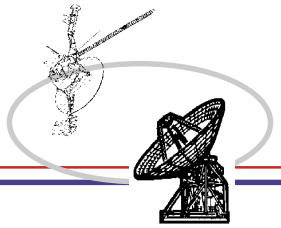


Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
04	**2003**	**January**	**SIRTF**	**P. Beyer**	**4/1/2002**	**Closed**

ACTION: Perform telecom analysis to determine the adequacy of DSS-63 supporting spacecraft on day of launch. The expressed concern is that the DSS-63 X-band transmitter may saturate the SIRTF receiver. (DSS-65 has Downtime; DSS-54 is supporting Cassini GWE.)

RESPONSE: (4/4/02) Using 200 Watts from DSS-63, the P_{total} into the Observatory will be -78 to -80 dBM. This should pose no risk to the spacecraft. HOWEVER, if the trajectory is the slightest bit off nominal, it is not good engineering practice to do a search with the 70m beamwidth. The 34m antenna is much more desirable for contingency purposes, and SIRTF should have priority use of DSS-54.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
05	**2003**	**January-April**	**DSN**	**M. Wert**	**4/1/2002**	**Closed**

ACTION: Investigate the impact to Operations of deleting or reducing the 70m Antenna Calibrations in this period.

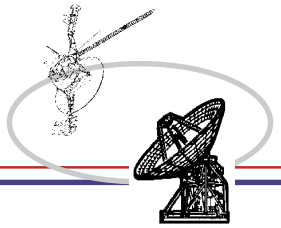
RESPONSE: (4/10/02) Minimum support has been analyzed and is provided:

1. GDSCC -- DSS14 can support forecast load if two 4-hour calibration blocks per month are provided Jan-Apr '03;
2. CDSCC -- DSS-43 can support at one 4-hour calibration block per month during Jan-Apr '03;
3. MDSCC -- DSS-63 can support at one 4-hour calibration block per month during Jan-Apr '03.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
6	**2003**	**November**	**MER-A,Odyssey**	**J. Erickson**	**5/1/2002**	**Closed**

ACTION: MER-A agreed to modify DSN requests for Odyssey and MGS to fulfill required support in Weeks 46-47 in November 2003.

RESPONSE: (6/4/02) MER-A has reduced requirements on the 70M subnet in this period.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
07	**2003-2004**	**December-February**	**Mars Program**	**C. Whetsel**	**5/1/2002**	**Closed**

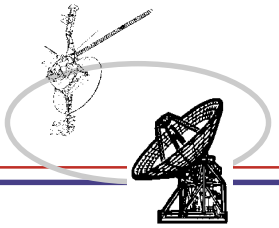
ACTION: Mars Program will evaluate support problems during the mid-December 2003 through end of February 2004 timeframe. All NASA and non-NASA Mars missions requirements will be evaluated and coordinated in light of the NASA Mars mission priorities and provided in time to be addressed at the August 2002 RARB.

RESPONSE: (4/26//02) Weekly priorities were established for all Mars Missions for this period.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
08	**2004**	**January**	**Cassini**	**B. Mitchell**	**5/1/2002**	**Closed**

ACTION: Cassini, based upon the recommendations of taking daily 1-4 hour gaps during the Canberra/Madrid overlap in January 2004, will evaluate impact to GWE. In addition, evaluate sliding the entire 40 days for the GWE earlier by a few weeks.

RESPONSE: (5/14/02) Cassini will move the GWE to begin October 20, 2003 through November 29, 2003.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
09	**2004**	**January**	**MER-B**	**J. Erickson**	**4/18/2002**	**Closed**

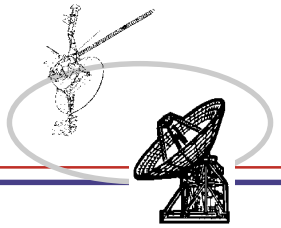
ACTION: Mars Exploration Rover Project will evaluate whether MER-B can reduce coverage during critical MER-A TCMs (4, 5, and 6) in order that the support is used for a MER-A required hot-backup 34m antenna.

RESPONSE: (6/4/02) MER-B has reduced support in week 52 from 21 to 18 passes per week. This should provide the requested reduction.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
10	**2004**	**January**	**DSN**	**C. Jacobs**	**4/18/2002**	**Closed**

ACTION: Provide analysis of impact (e.g., to MER-B landing accuracy) of moving DSN Clock Sync VLBI out to Week 4.

RESPONSE: (5/1/02) Provided a prioritized alternative support decision tree to assist scheduling of DSN Clock Sync and Catalog M&E activates in order to maintain minimum support.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
11	**2004**	**January**	**MER**	**J. Ludwinski**	**2/26/2002**	**Closed**

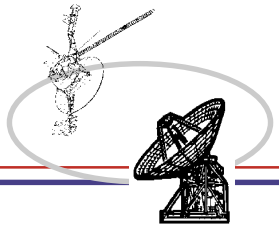
ACTION: Provide MER Project Surface Operations Viewperiods for the four primary and two alternate landing sites to RAPSO (J. Kehrbaum).

RESPONSE: Complete set of viewperiods were provided 8 March 2002.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
12	**2003-2004**	**November-February**	**DSMS P & C**	**R. Miller**	**5/1/2002**	**Closed**

ACTION: Identify Risk Posture for individual mission's key events to plan steps the DSN can do to mitigate foreseeable anomalies (e.g., spacecraft emergency, station outages, MCD3 contention, etc.).

RESPONSE: (6/27/02) Organized a '03 - '04 DSMS – Missions Workshop to address this topic now called Triage. This will be a continuing discussion item at ensuing workshops.

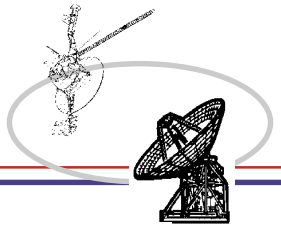


News from Office of Space Science

Topics:

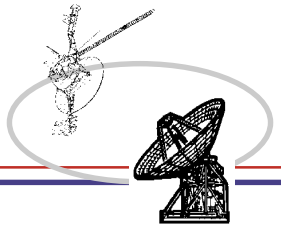
- 2003 Appropriation
- NRC/SSB Decadal Studies
- Science Prioritization Board
- Realignment of Space Operations

Dr. Charles P. Holmes
Sun-Earth Connection Division



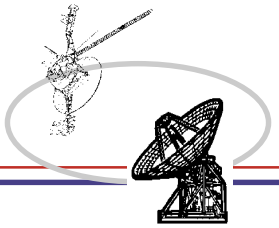
Status of the 2003 Appropriations Bill

- The Senate Appropriations Committee has passed their 'mark up' to the bill:
  - $105M for the New Horizons Program for the Pluto-Kuiper Belt (PKB) mission
  - A decrease of $9M from the proposed Nuclear Power Program - RTGs
  - A decrease of $4M from the proposed Nuclear Electric Propulsion program.
  - A decrease of $16.5M from the flight projects building at the Jet Propulsion Laboratory. The Committee makes this reduction without prejudice in light of the Agency's decision to postpone construction in fiscal year 2002.
- Congress is currently in recess
- September agendas include:
  - House appropriations committee markups
  - Full Senate and House votes/amendments
  - Conference committee settles differences



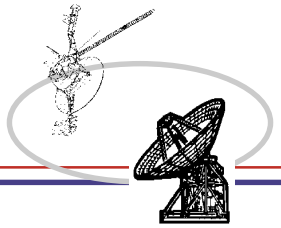
Decadal Survey - Solar System Mission Priorities

- ***Small Class (<$325M)***
  - Discovery missions at one launch every 18 months
  - Cassini Extended mission
- ***Medium Class (<$650M) – New Frontiers***
  - Kuiper Belt/Pluto
  - South Pole Aitken Basin Sample Return
  - Jupiter Polar Orbiter with Probes
  - Venus In-situ Explorer
  - Comet Surface Sample Return
- ***Large Class (>$650M)***
  - Europa Geophysical Explorer



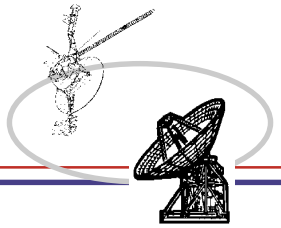
Decadal Survey Results- Mars

- Highly supportive of continued Mars Exploration
- Top priorities consistent with present Program science strategy, architecture, and this decade's plans
  - ***Small Class:*** **Scouts**
    Second priority mission (upper atmosphere research) to be part of Scout competition
    Implementation in every other opportunity to be considered in next decade plans
  - ***Medium Class:*** **Mars Smart Lander**
    Second priority mission (long lived network science) to be considered in next decade plans
  - ***Large Class:*** **Sample Return** (Enabling technologies this decade)
    Actual implementation of MSR to be considered in next decade plans



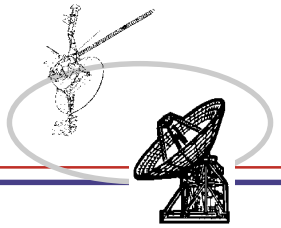
Decadal Study - Sun-Earth Connection

- **Small Class (<$250M)**
  - L1 Monitor - operational warning capability for space weather
  - Solar Orbiter - NASA participation in ESA's future mission
- **Moderate Class (<$250-$400M)**
  - Magnetic Multiscale (MMS) - the next mission in the Solar-Terrestrial Probe (STP) program
  - Geospace Network - the next mission in the Living with a Star (LWS) program
  - Jupiter Polar Mission - very similar to the mission recommended for SSE
  - Multi-Spacecraft Heliospheric Mission - explorer solar wind structure at L1
  - Geospace Electrodynamics Connections - in the STP cue
  - Magnetospheric Constellation - 50 to 100 nanosats
  - Solar Wind Sentinels - three S/C at 0.98 AU to provide early warning
- **Large Class (>$400M)**
  - Solar Probe - recommend implementation as soon as possible (conditional)



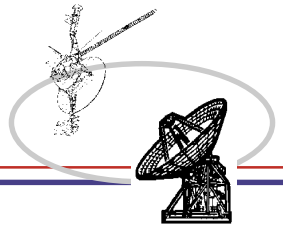
Science Prioritization Board

- Established to provide prioritization to DSMS on allocations of the DSN during the Nov 2003 - Feb 2004
  - Preparing for the contingency or emergency operations
- Second Meeting held in July at HQ
  - A preview of the RARB conflicts
  - Reps from the OSS science themes, OSS Executive Director for Science, the HQ Mars Office and the RAPSO
- The next activity will be to organize dry runs and practices for setting prioritization directions in real time.



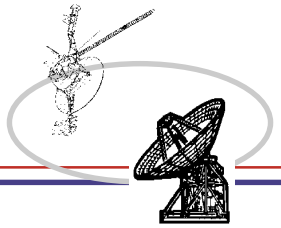
Space Communication Realignment

- NASA's Data Networks have been realigned to the Enterprises:
  - ***DSN => Code S***
  - ***Ground Network => Code Y***
  - ***Space Network and NISN stay in Code M***
- The realignment is contained in the 2003 President's budget request.
- The three Enterprises established a MOA on how to coordinate the management of the networks
  - Deputy-AA level steering board
  - The principal program executives comprise a program coordination and integration board to oversee
  - Code M leads several cross-enterprise working groups for network architecture, spectrum management, technology, etc.



JPL DSMS
Engineering Program Office

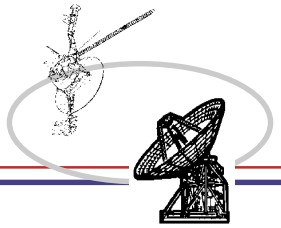
J. I. Statman
JPL



Agenda

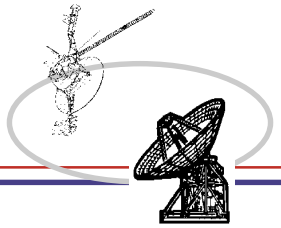
- Tasks recently completed
- Tasks to be completed before the ‘03-’04 heavy loading
- Decommissioning

Consult your TMS Manager for details of schedule and functional capabilities



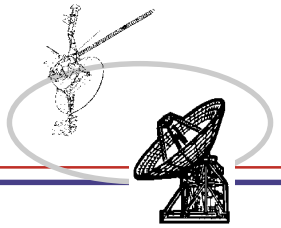
Tasks Recently Completed

- 26m automation, D3.1, adds automation and SLE capability
  - In Soak at GDSCC since mid-July, in MDSCC/CDSCC since early August
  - All missions should be transitioned or working the transition
    - E.G. Discontinue usage of TCA/TGC & CPA/CMA
- NMC 1.4, adds remote monitoring at NOCC and ROSA
  - In soak at all DSCC's since mid July
  - Minimal impact on missions. 0158-MON is now fully available, missions need to transition from use of MON-5-15 and MON-5-16
  - Need accurate SOE's to take full advantage of automated use, via TDN's
- AMMOS 26.4 & Uplink D2, modern command system upgrade
  - UPL D2 deployed before last RARB. AMMOS 26.4 deployed in June
  - Most missions have already transitioned
    - Use of CMA/CPA should be discontinued



Tasks to Be Completed Before the '03-'04 Overload

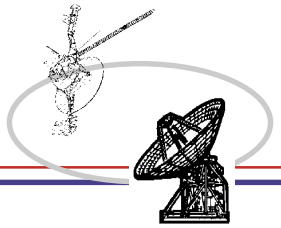
- X/X/Ka-band feeds
- DSS-55
- 20 kW Transmitters on BWG's
- 2-MSPA
- Arraying at Overseas DSCC's
- Delta-DOR
- NSP



X/X/Ka Feeds

- WHAT:
  - Replace the X/X feeds at the BWG's with X/X/Ka-band feeds
- WHEN:
  - Operational – varies by antenna
    - DSS 26 – 4/2003
    - DSS 55 – 11/1/03

- IMPACT ON CUSTOMERS:
  - Ka-band downlink capability
  - Improved X-band BWG downlink sensitivity at X-band
    - 0.5-2.5 dB depending on the operations mode and reference antenna

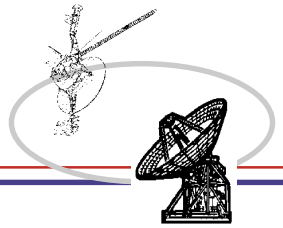


DSS 55

- WHAT:
  - Add a new antenna, a 34m BWG at MDSCC
- WHEN:
  - Operational – 1/11/03
- IMPACT ON CUSTOMERS:
  - Additional capacity

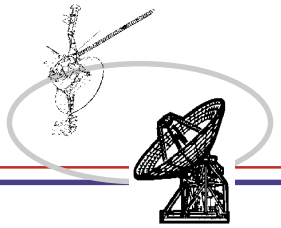
DSS 55 – Aug 2, 2001

DSS 55 – Aug 3, 2002



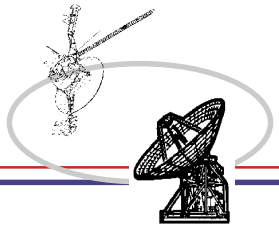
20 kW Transmitters on BWG

- WHAT:
  - Replace the 4 kW X-band Transmitters with 20 kW Transmitters
- WHEN:
  - Varies by antenna
- IMPACT ON CUSTOMERS:
  - Better uplink capability
    - Same as HEF
    - Simplifies scheduling



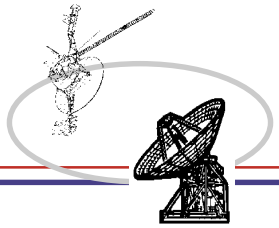
2-MSPA

- WHAT:
  - Simplify the operations to support the downlink from two (virtual) spacecraft that are in the same beam
- WHEN:
  - Operational – Spring ‘03
- IMPACT ON CUSTOMERS:
  - Additional effective capacity
  - Note limitations
    - Only one uplink
    - Must have compatible RF characteristics



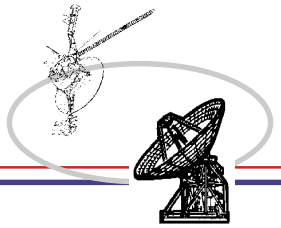
Arraying at Overseas Stations

- WHAT:
  - Add arraying capability at MDSCC and CDSCC
- WHEN:
  - Operational – Summer ‘03
- IMPACT ON CUSTOMERS:
  - Additional capacity, especially when the 70m antenna is busy



Delta DOR

- WHAT:
  - Add a new navigation tool
    - Validates traditional radio-metric measurements
    - Enables better targeting
- WHEN:
  - Operational – Spring ‘03, already used for Mars Odyssey
- IMPACT ON CUSTOMERS:
  - Additional tool for the navigation teams
    - Navigation strategy should be refined/adjusted as needed

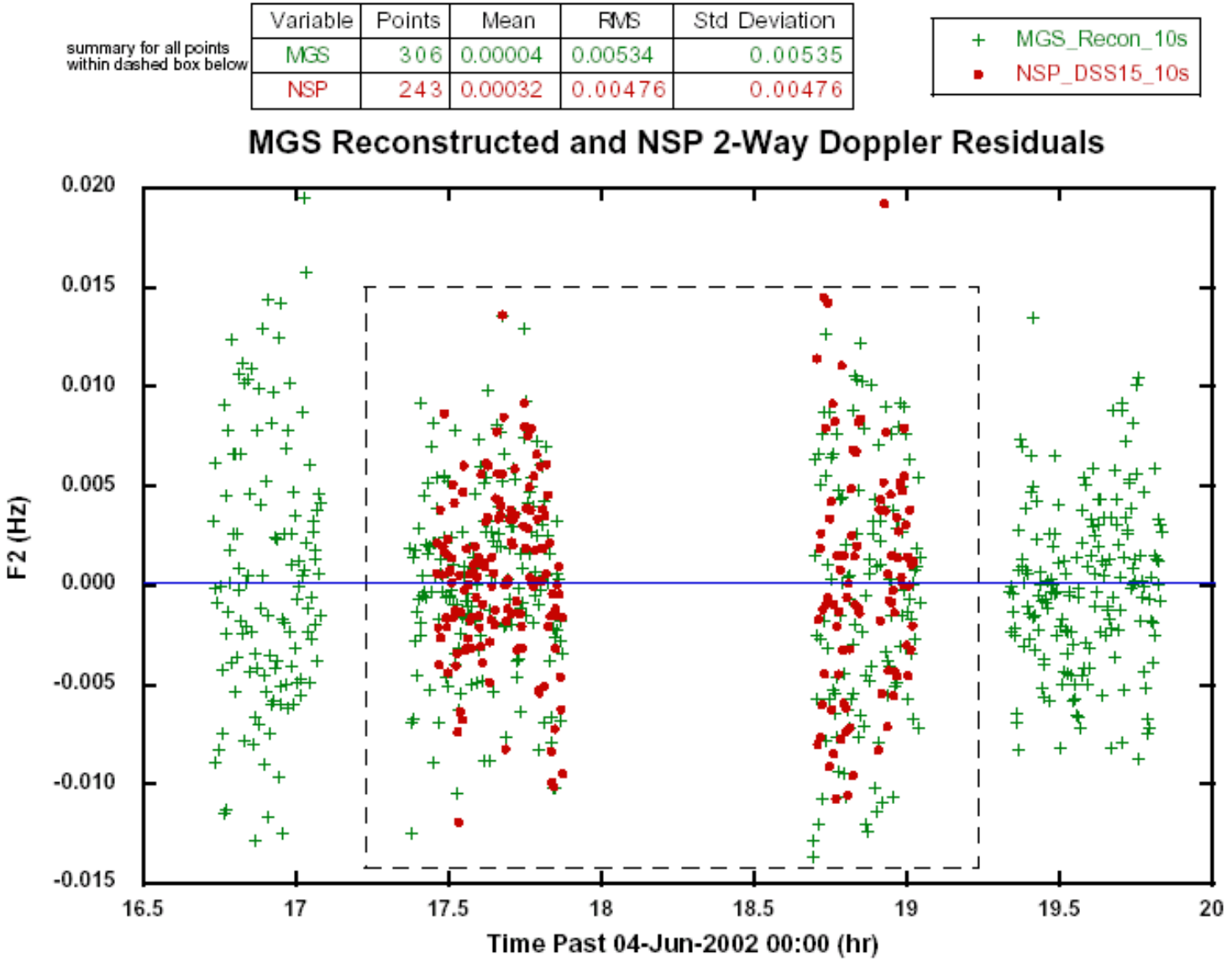


NSP

- WHAT:
  - Replace the telemetry/ranging/Doppler equipment for the 34/70m antennas
- WHEN:
  - Varies by antenna. Equipment already available at DSS 26
- IMPACT ON CUSTOMERS:
  - New interfaces
  - Some new capabilities, e.g. telemetry SLE

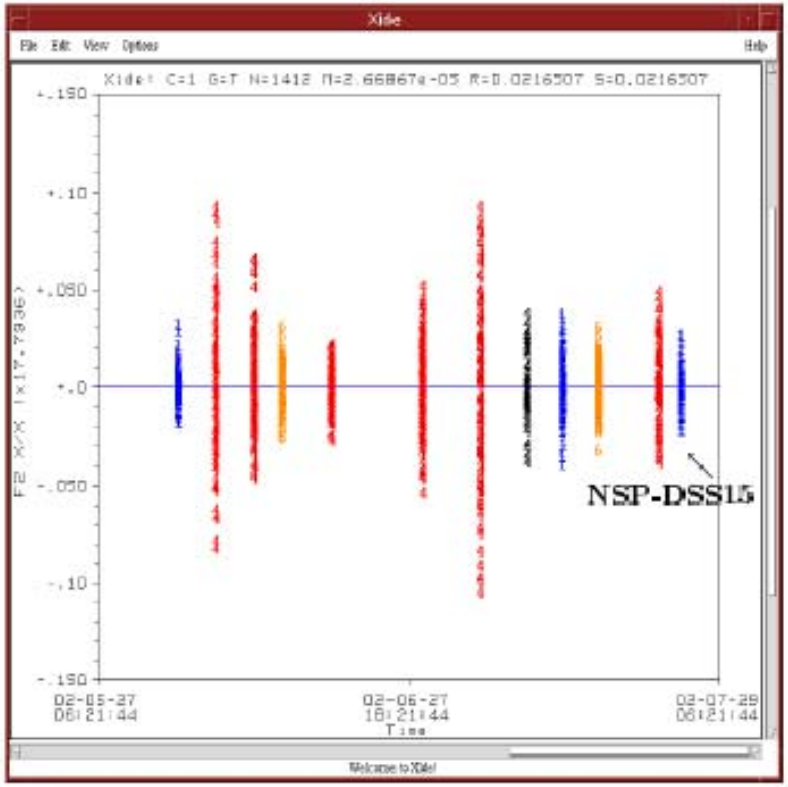
summary for all points within dashed box below

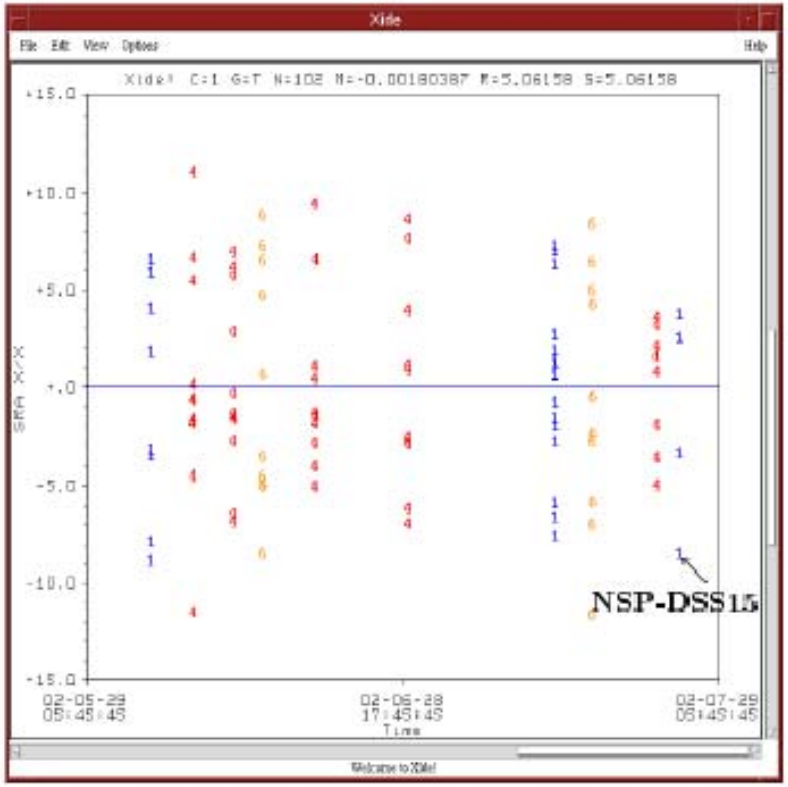
Variable	Points	Mean	RMS	Std Deviation
MGS	306	0.00004	0.00534	0.00535
NSP	243	0.00032	0.00476	0.00476

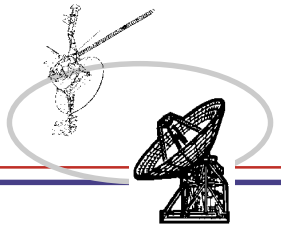


RESOURCE ALLOCATION REVIEW

Jet Propulsion Laboratory
California Institute of Technology

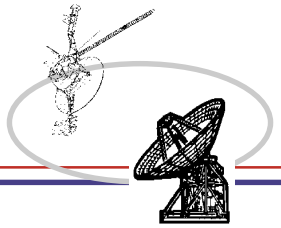






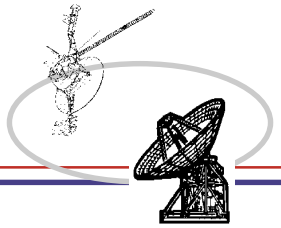
Turbo Code

- WHAT:
  - Add a new error-correcting method to all the 34/70m antennas
- WHEN:
  - Operational – 10/03
- IMPACT ON CUSTOMERS:
  - Better coding gain, e.g. by 0.8 dB for a typical code, compared to MCD3
  - Note: The MCD3 is not available to new customers. Turbo code should be used as the high performance code



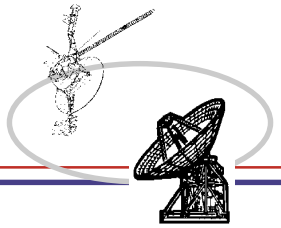
Decommissioning

- Modest decommissioning in near-term is planned
  - Equipment replaced by tasks, e.g.
    - Old Radio-science equipment
    - LMC/CMC/NOCC
    - CPA/CMA, MDA/SRA, TGC/TCA
- Longer-term decommissioning
  - Driven by meeting customer needs within the budget
    - E.G. - S-band hi-power transmitters



Tasks to Be Completed After FY03

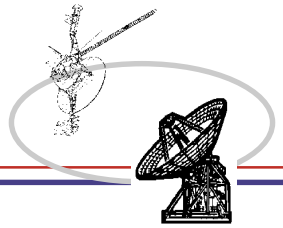
- X/X/Ka-band feeds
  - For the remaining BWG
  - Schedule is TBD
- Antenna controllers for the 70m and HEF
  - Will require significant downtime
- 70m refurbishment
  - Will require significant downtime



Summary

- **We depend on the customers to:**
  - Take advantage of the capabilities we have put in place
    - SLE, TDN's, arraying
  - Define what capabilities we should put in place
    - Beyond sustaining of current capabilities
  - Help us to select capabilities that are least cost-efficient that could be candidates for decommissioning

- **Your input is priceless!**



JPL DSMS
Operations Program Office

J. A. Wackley

JPL

DSMS Operations

Joe Wackley

13 August 2002

DSMS Operations Office

- DSMS Operations Office is responsible for operational readiness of AMMOS and DSN assets. Significant preparations which lead to successful '03 / '04 support are underway
  - Began high level training on NSP capabilities in January '02 in order to identify needed procedural and planning documents updates
  - Following DSN standard procedures for preparations for mission support with augmentations to include new capabilities and '03 / '04 unique requirements: MSPA, DDOR and Parkes
  - Developing Multiple Spacecraft per Antenna (MSPA) operations scenarios and procedures
  - Developing Parkes (DSS 49) operations agreement and plan

DSMS Operations Office

- DSMS Operations is also working in the following areas to be ready for '03 / '04:
  - Updating documentation and procedures
  - Reducing maintenance time
  - Reducing tracking preparation time
  - Operating non-DSN assets
  - Improving response
  - Coping with extended Level 1 times
  - Developing MSPA operations scenarios

DSMS Operations Office

- DSMS and station personnel are performing a statistical study to determine required equipment set up and tear down times (pre- / post-track)
  - New values would increase tracking time available to the projects in '03 / '04
- Maintenance Plan for all deep space stations is being prepared for issuance this summer
  - Plan requires DSCC Managers to identify significant maintenance required to be accomplished prior to October '03
- DSN Operations Working Group (DOWG) & Logistics Working Group (LOWG) established to work detailed issues related to mission support especially the '03 / '04 missions

DSMS Operations Office

- New position being established in the Network Operations Control Center (B230) to improve DSN response to flight projects and to enable rapid resolution of problems
  - Position, to be known as the Tracking Support Specialist, will work with the DSCC Link Controllers and flight project personnel to assist in timely resolution of ground problems and to provide real time support for the Link Controllers (e.g., schedule changes, prediction transmissions, etc.)
  - Currently developing a new training program with assistance from CDSCC which should result in the TSS having the same capabilities as a qualified link controller
  - DSMS Operations has requirements and plans for a reconfiguration of the B230 "dark room" to remove and replace old consoles and add consoles for new position

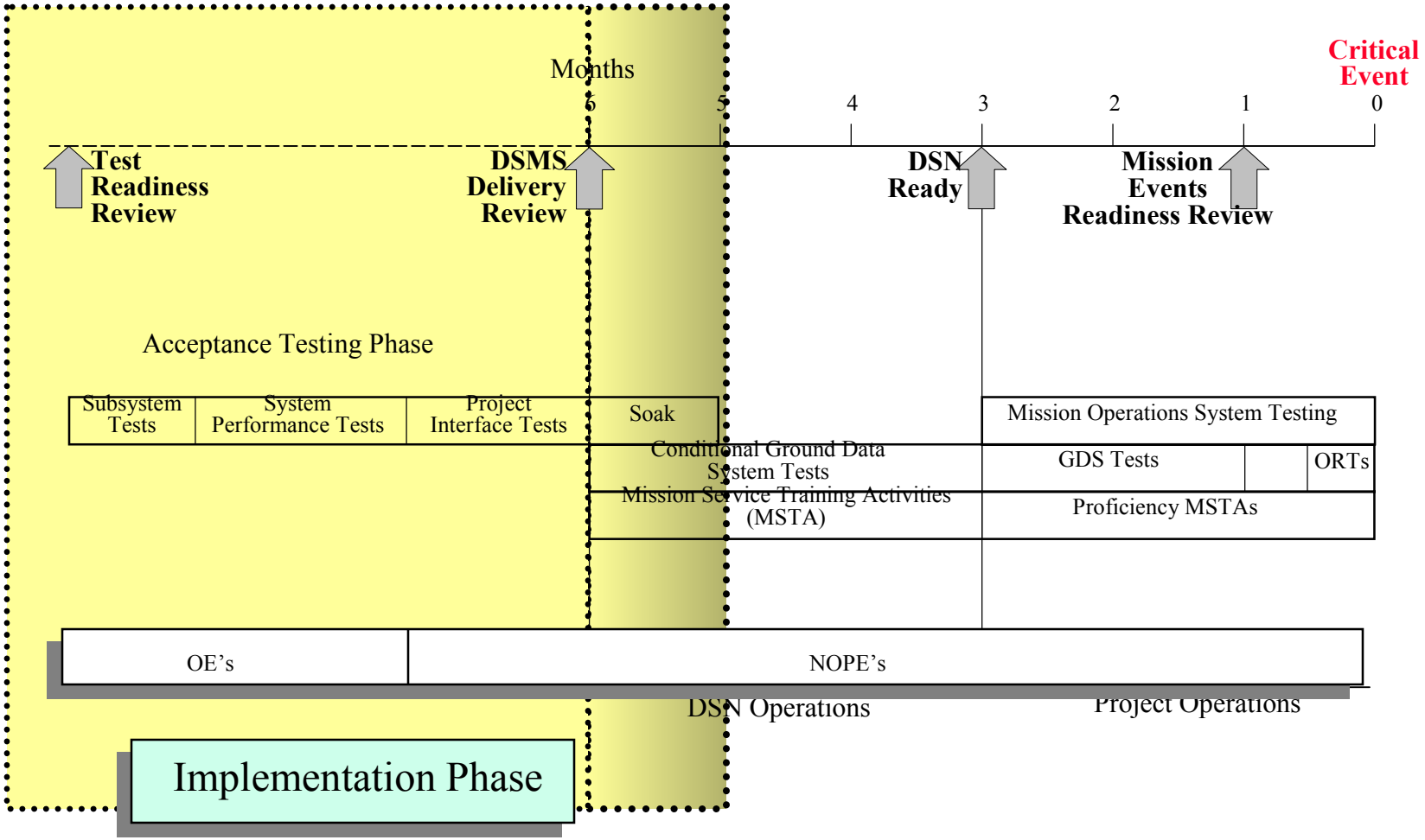
DSMS Operations Office

- Operations is starting into an extended period of intense activity
- Besides supporting flight projects, Operations personnel at JPL and DSCC's provide support for all implementation activities
- Operations Engineers support entire development process, development testing, perform all Acceptance Tests and System Performance Tests and develop operations procedures (see next slide)
- Customer Service Representatives & Network Operations Project Engineers support development testing ("shadow tracks"); perform project interface tests, Ops training, proficiency tests; develop operations plans; and coordinate with flight projects for data and personnel interfaces, GDS tests and ORT's, etc. (see next slide)
- DSCC engineers and technicians support installation, integration and test; support all testing (Engineering and Ops)

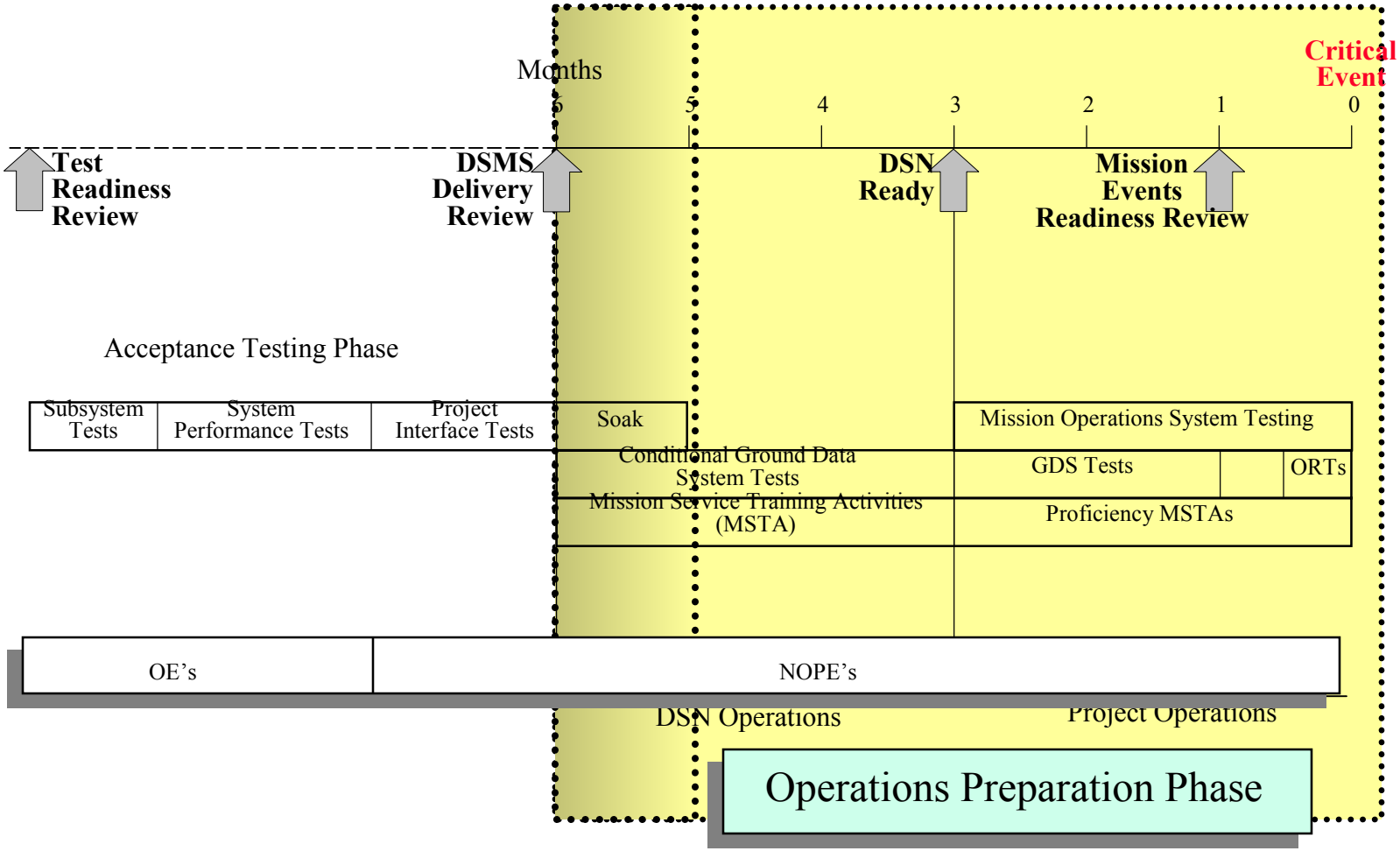
DSMS Operations Office

- All done simultaneously with performing routine and special maintenance; preparing NOP's; performing MSTA's, etc. for mission readiness for a large number of missions; analyzing and troubleshooting problems with legacy and new systems
- Extreme load that goes on for more than a year
- OE's will be seriously overloaded for an extended period of time due to lengthy implementation period; there may be resource problems
  - Moving to hire additional OE and system analyst personnel
- CSR's & NOPE's will be heavily loaded supporting changes necessitated by new implementation and unusually complex mission support scenarios
  - Threat of being distracted from normal project support responsibilities
  - Moving to hire additional personnel

Typical Operations Implementation Support

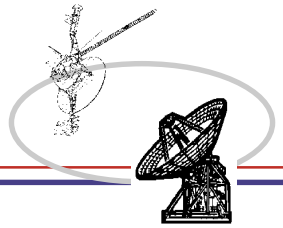


Typical Operations Preparation Phase



DSMS Operations Office

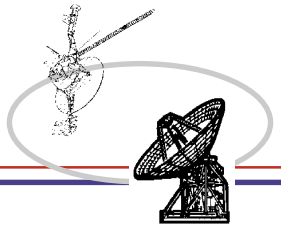
- In summary:
- DSMS Operations is already in a very busy time which will extend beyond the '03/ '04 Crunch
- We are working to assure customer service during that period and to respond to customer needs such as reducing set up/tear down times and improving real time response



New Action Items / Summary

E. S. Burke

JPL



Resource Allocation Review
2004 - 2013
TIMELINE FOR NEXT REVIEW
February 11, 2003

Calendar Date	Milestones
October 22, 2002	Distribute Mission Set, Major Events and User Loading Profiles to Projects/Users for verification.
November 15, 2002	Deadline for Projects/User's responses to Mission Set, Major Events, and User's Loading Profiles; and last day for trajectory or viewperiod updates or submissions.
January 14, 2003	NASA Headquarters Science Review
January 21, 2003	Publish preliminary Contentions and Recommendations on the RAPWEB for Projects/User's review.
January 24, 2003	Review RAPWEB published contentions with Projects/Users
February 11, 2003	Resource Allocation Review

RARB - August 13, 2002

- Loading Profiles Distribution Letter (PDF)
- Loading Profiles Distribution List (PDF)
- Attachment 1 - Time Line (PDF)
- Attachment 2 - DSN User / Mission Planning Set (PDF)
- Attachment 3 - TMOD Antenna Implementation Dates (PDF)
- Attachment 4 - Major Downtimes by Date and Site
- Attachment 5 - User / Mission Requirements
- Attachment 6 - User / Mission Major Events
- Right Ascension Charts and DOY Calendars
- REDBOOK Final v2.2 (PDF)
- Supplemental Material (PDF)
- RARB Minutes and Attachments (PDF)